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I N T E R N A L M E D I C I N E

QUESTIONS

2014

BOARD-STYLE
QUESTIONS & ANSWERS

GASTROENTEROLOGY • PULMONARY MEDICINE • CARDIOLOGY • INFECTIOUS DISEASE • NEPHROLOGY

ENDOCRINOLOGY • HEMATOLOGY • ONCOLOGY • NEUROLOGY • RHEUMATOLOGY • ALLERGY / IMMUNOLOGY

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Learning Objectives

As a result of participation in this activity, learners will be able to:

- Integrate and demonstrate increased overall knowledge of Internal Medicine
- Identify and remedy areas of weakness (gaps) in knowledge and clinical competencies
- Describe the classic presentations of diseases encountered in Internal Medicine, and effectively narrow the differential diagnosis list by recognizing distinguishing elements of the history, physical exam, and laboratory and radiologic data
- Apply the competence and confidence gained through participation in this activity to both a successful Board exam-taking experience and daily practice

Target Audience

Participants in this educational activity are those physicians seeking to assess, expand, and/or reinforce their knowledge, decision-making strategies, and clinical competencies in Internal Medicine, focusing their learning on subjects that are directly relevant to clinical scenarios that will be encountered in the practice setting, as well as on the ABIM Certification or Maintenance of Certification (MOC) Board exam.

Method of Participation

Use the question-answer content as a self-study, self-testing exercise, attempting to answer questions as though they are part of an actual Board exam. Compare your selected answers against the answers given as correct in the Answer Book to assess your level of knowledge, understanding of pertinent medical facts, and clinical decision-making. Review your results to see your relative strengths and weaknesses by topic areas. Repeat the self-testing process as often as necessary to improve your knowledge and proficiency and ultimately to ensure your mastery of the material. Participants will be required to complete a posttest as part of the requirements for receiving CME credit for this product.

MedStudy 2014 Internal Medicine Board-Style Questions & Answers

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- *MedStudy Internal Medicine Review Core Curriculum, 16th Ed.* MedStudy, 2014.
- *MedStudy Internal Medicine Core Scripts[®] Flash Cards, 2014–2015 Ed.* MedStudy, 2014.
- Heart Sounds™ (MedStudy Interactive), MedStudy, Colorado Springs, CO, 2012.
- Skin Signs™ (MedStudy Interactive), MedStudy, Colorado Springs, CO, 2012.
- Longo DL, Fauci AS, Kasper DL, et al (eds). *Harrison's Principles of Internal Medicine, 18th Ed.* McGraw-Hill Medical, 2012.
- Goldman L, Schafer AI. *Cecil Medicine, 24th Ed.* Saunders Elsevier, 2012.

Web-based:

- National Guideline Clearinghouse: <http://www.guideline.gov/>
- American College of Physicians Guidelines: http://www.acponline.org/clinical_information/guidelines/

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Internal Medicine Board-Style Questions & Answers

2014

QUESTIONS

Robert A. Hannaman, MD
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Note: Many of the images you see throughout this Questions book can be viewed in color in Appendix B at the back of the book.

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About the questions and answers in this learning activity

The questions, answers, and explanations in this learning activity are developed by specialty and subspecialty experts who are additionally physician educators.

The questions in this book are reflective of the questions on the Board exams. As a result, you will find that the percentage of questions by topic in this activity mirrors the Board template. You will find questions of varying length here. The very short ones are designed to nail home an important point you need to know and remember for your Boards. The lengthier questions help you integrate content on a subject with additional clinical information to better simulate a real-life patient scenario. This helps you recognize disease states and associated treatment, which is a skill heavily tested on Board exams. Some selected patient case scenarios may appear more than once with only slight variations, with the associated questions addressing different diagnoses and treatment aspects of the case. This is in keeping with the approach Board questions take in limiting patient case assessments to one key testing point.

In short, this Q&A material is designed to impart not only relevant knowledge for IM Board exams but also challenge your skills in interpretation and intervention, which is what Board exams attempt to assess. This is why we call these, appropriately, “Board-style” questions and answers.

There is a popular misconception that members of organizations perceived to be associated with medical boards write Board exam questions; e.g., ACP/MKSAP with the American Board of Internal Medicine or AAP/PREP with the American Board of Pediatrics. Not only is this not true, it is actually forbidden for anyone to write formal Board exam questions if they work for a company or organization in the business of producing Board preparation materials. This would compromise the integrity of the examining process.

MedStudy is proud to be able to bring you Board-style questions and answers of the highest quality—to offer you education that is relevant in a format that reinforces your knowledge to prepare you well for whatever challenge the ABIM Board exam presents to you. One final note: Even the best question-and-answer exercise by itself is not an adequate preparation for a Board exam. These Q&As should be used as an adjunct to a comprehensive Board review course—such as MedStudy’s Internal Medicine Review Core Curriculum. The Boards cover a vast realm of information that Board simulation Q&As alone cannot encompass.

GASTROENTEROLOGY

1.

A 32-year-old man presents for a physical to obtain life insurance. He reports being in good health generally. He takes no medications. He is a 1/2 ppd smoker and reports alcohol use of 1–2 drinks per day. On review of systems, he reports frequent heartburn for the last several months. He denies diarrhea.

On physical exam, he is afebrile, blood pressure is 115/70, pulse rate is 72/min, respiratory rate is 16/min; BMI is 28. His abdominal exam reveals a non-distended abdomen without tenderness or hepatosplenomegaly.

Laboratory studies:

Na:	138
K:	4.0
Cr:	0.8
Glucose:	85
Hemoglobin:	11.0 g/dL
Platelet count:	230,000/uL
Alanine aminotransferase:	30 units/L
Aspartate aminotransferase:	25 units/L
Alkaline phosphatase:	80 units/L
Bilirubin:	1.0 mg/dL

What is the next best step in the management of this patient's heartburn?

- A. Ambulatory pH study.
- B. *H. pylori* serology.
- C. Perform endoscopy.
- D. Tissue transglutaminase IgA Ab.
- E. Trial of a proton pump inhibitor.

2.

A 19-year-old woman presents with daily acid reflux symptoms and intermittent dysphagia to solids. Since onset of symptoms 3 months ago, she has lost 4 pounds. She also has sporadic rectal bleeding. Her past medical history is negative. Her father had stomach cancer at age 42.

What would you recommend?

- A. EGD
 - B. Reassurance
 - C. Barium esophagram
 - D. PPI therapy for 6–8 weeks
-

3.

A 64-year-old man presents to the emergency department complaining of abdominal pain that has progressively worsened over the last 2 days. He reports associated nausea and vomiting. His past medical history includes hypertension and hyperlipidemia. He smokes 1/2 ppd and drinks 1–2 beers/day. Medications include lisinopril, hydrochlorothiazide, and simvastatin.

On physical exam, temperature is 37.5°C, heart rate 105/min, blood pressure 135/83, respirations 22/min. He appears in mild distress secondary to pain. Abdominal exam reveals a distended abdomen with tenderness to palpation greatest in the epigastric region. Abdominal skin is discolored as shown in the image. Heart and lung exams are otherwise unremarkable. (See Appendix B for color image Figure 1.)



What is the next best step to confirm the diagnosis?

- A. CA 19-9
- B. CT of the abdomen
- C. Endoscopic retrograde cholangiopancreatography
- D. Serum lipase
- E. Ultrasound of the abdominal aorta

4.

A 64-year-old man presents to the emergency department complaining of central abdominal pain that has progressively worsened over the last 2 days. He reports associated nausea and vomiting that worsens with PO intake. His past medical history includes hypertension and hyperlipidemia. Past surgical history includes a cholecystectomy 10 years ago. He smokes 1/2 ppd and drinks 1–2 beers/day. Medications include lisinopril, hydrochlorothiazide, and simvastatin.

On physical exam, temperature is 37.5°C, heart rate 105/min, blood pressure 135/83, respirations 22/min. He appears in mild distress secondary to pain. Abdominal exam reveals a distended abdomen with tenderness to palpation greatest in the epigastric region. Abdominal skin is discolored as shown in the image. Heart and lung exams are otherwise unremarkable.

Laboratory studies are significant for a lipase of 8,053 units/L.

(See Appendix B for color image Figure 1.)



Which of the following is the most likely precipitant of the patient's current symptoms?

- A. Cholelithiasis
- B. Hypertriglyceridemia
- C. Tobacco use
- D. Hydrochlorothiazide
- E. Alcohol

5.

A 50-year-old man had an inferior myocardial infarction 1 week ago. He was discharged 5 days after admission in stable condition. He has a follow-up appointment scheduled for 1 week after discharge. His wife (an attorney) calls and says that he woke up throwing up about 1/4 cup of blood. You meet him at the emergency department and discover that he is now well appearing. His vital signs are normal, and he feels quite well at the moment.

PAST MEDICAL HISTORY: Besides the recent MI, hypertension for 20 years treated with various calcium channel blockers

CURRENT MEDICATIONS: Propranolol 25 mg q day
Enteric-coated ASA 80 mg q day

SOCIAL HISTORY: Smoking: Hasn't smoked since his MI; before that, 1 pack/day x 30 year
Alcohol: Drinks 2 beers a day until recent MI; now abstinent
Illicit drugs: Never used

FAMILY HISTORY: Father died of MI at age 50
Mother died of MI at age 70
Brother with MI at age 60

REVIEW OF SYSTEMS: Mild epigastric pain
No fever, chills, weight loss, or night sweats

PHYSICAL EXAM: BP 120/60, P 64, RR 18, Temp 99° F
HEENT: PERRLA, EOMI, sclera nonicteric
Neck: Supple; no bruits
Heart: RRR without murmurs, rubs, or gallops
Lungs: Clear to auscultation
Abdomen: Mild epigastric tenderness to deep palpation
Extremities: No cyanosis, clubbing, or edema
GU: Mild heme-positive stool; no melena

Laboratory values are normal except for his platelet count, which is 100,000.

An esophagogastroduodenoscopy (EGD) is contraindicated for which of the following reasons:

- A. He is on enteric-coated ASA, and he might bleed during the procedure.
 - B. His platelet count is too low.
 - C. He had a recent MI.
 - D. He is stable, and EGD is not indicated at this point.
 - E. His wife is an attorney.
-

6.

A 60-year-old Native American woman with a history of hypertension and hyperlipidemia presents with right upper quadrant pain and fever. She has been ill for several days and reports that she has been vomiting on occasion during the last day or so. She denies recent travel.

PAST MEDICAL HISTORY: Hypertension for 20 years, currently treated with fosinopril 20 mg q day

SOCIAL HISTORY: Smokes 1/2 pack a day for 45 years
Alcohol: Occasional glass of wine on weekends

FAMILY HISTORY: Mother died from acute MI at age 75
Father died from "old age" at 99
Sister with gallstones and HTN
Brother with HTN

REVIEW OF SYSTEMS: Decreased appetite, recent fatty food intolerance; fever for 2 days, chills

PHYSICAL EXAMINATION: General: Moderately ill-appearing woman
VS: Temp 102.2° F, BP 110/70, Pulse 105, RR 25
HEENT: Scleral icterus, PERRLA, EOMI
Throat: clear
Heart: RRR with no murmurs, rubs, or gallops; tachycardic
Lungs: CTA
Abdomen: Diminished bowel sounds, right upper quadrant tenderness to palpation; she has rebound tenderness also
GU: Normal female genitalia, no tenderness on bimanual palpation
Extremities: No cyanosis, clubbing, or edema

LABORATORY: White Blood Count (WBC): 18,500 with 70% neutrophils, 15% band forms, 10% monocytes
Hematocrit: 37.2%
Platelet count: 522,000/mL
Serum chemistries: Sodium 140 mg/dL, chloride 110 mg/dL, potassium 4.2 mg/dL
Total bilirubin 6 mg/dL with a direct bilirubin of 4 mg/dL
Serum aminotransferases: AST 90 IU/L, ALT 75 IU/L; alkaline phosphatase 300 IU/L
Computed tomography of the abdomen shows a dilated common bile duct and no other abnormalities.

The next appropriate diagnostic study is which of the following?

- A. Endoscopic retrograde cholangiopancreatography (ERCP) with laparoscopic cholecystectomy
- B. Ultrasonography
- C. Liver biopsy
- D. Magnetic resonance imaging of the biliary system
- E. Exploratory laparotomy

7.

A 60-year-old Asian woman presents with a chief complaint of difficulty in swallowing solid foods for the past 2 weeks. She noted this while attending her friend's wedding reception. At the wedding, she noted that she could not swallow the fried shrimp very easily. Since then, she has noted that the only things she can swallow easily are soft foods like gelatin and bananas. She does not seem to have difficulty with liquids.

PAST MEDICAL HISTORY: Healthy, no problems
Normal GYN exams

SOCIAL HISTORY: Lives with her husband in Alabama
Smokes 3 packs/day of cigarettes
Drinks beer on occasion, but only with fried shrimp

FAMILY HISTORY: Mother healthy, HTN
Father died 2 years ago at age 75 of CVA
Sister in good health
6 brothers, all in relatively good health except her youngest brother, who has severe coronary artery disease

REVIEW OF SYSTEMS: Essentially unremarkable; except for 15-lb weight loss

Which of the following is the next diagnostic test you should order?

- A. Esophagogastroduodenoscopy (EGD)
- B. Barium swallow
- C. MRI of chest
- D. Tensilon® test
- E. Motility studies

8.

A 50-year-old man with a negative past medical history presents with progressive dysphagia for both liquids and solids. Recently, he has started to regurgitate food, especially while bending over. He reports that this has occurred gradually over the past year and he now has had a 10-lb weight loss, which was unintentional. He denies any other symptoms and has been healthy except for a viral illness 6 months ago.

PAST MEDICAL HISTORY: Negative for anything of significance

SOCIAL HISTORY: Never smoked
Doesn't drink alcohol except at "special occasions"
Works as a writer for a medical publishing company—reports being very highly stressed at all times by deadlines
No travel history; specifically not to South America

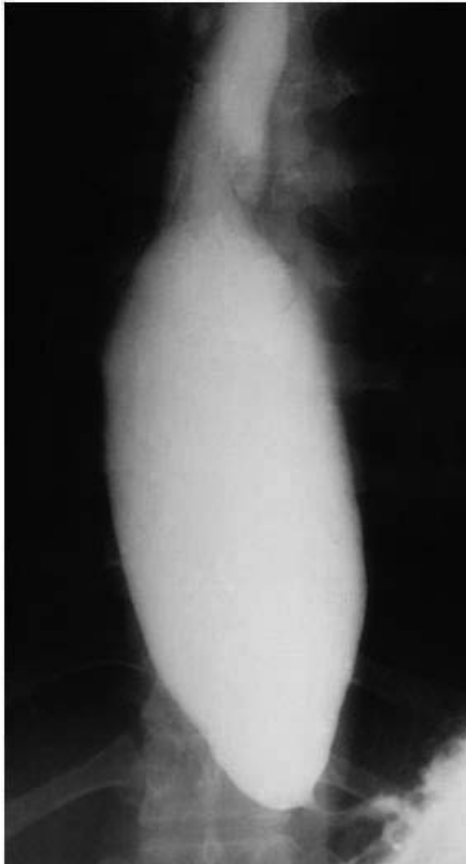
FAMILY HISTORY: Noncontributory

REVIEW OF SYSTEMS: No fever
No chest pain or discomfort
No rash
Denies tinnitus

PHYSICAL EXAMINATION: Generally well-appearing man
VSS: Afebrile
HEENT: PERRLA, EOMI,
Tympanic membranes clear
Throat clear
Neck: Supple, no bruits
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Benign, no tenderness, no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema
GU: Deferred
Neurological: Reflexes equal and symmetrical throughout; no sensory or motor deficits noted

LABORATORY: CBC: Normal
Electrolytes: Normal
CXR: Widened mediastinum with an air-fluid level and no gastric air bubble

Barium Swallow:



Based on your findings, which of the following is the most likely diagnosis for this patient?

- A. Gastroesophageal reflux
- B. Esophageal ulcer
- C. Chagas disease
- D. Achalasia
- E. Plummer-Vinson syndrome (Patterson-Kelly syndrome)

9.

A 55-year-old woman presents as a new patient for a routine checkup. On questioning, you determine that she has been relatively healthy and has not required any hospitalizations since the delivery of her last child over 20 years ago. She notes that she recently has had swelling of her hands and occasionally of her feet. She relates this to “eating too much salt.” Her only other complaint is that she has frequent heartburn, and occasionally notes “food sticks when it goes down.” She does not report any other problems.

PAST MEDICAL HISTORY: As above, noncontributory

SOCIAL HISTORY: Works as a 4th grade elementary teacher
Quit smoking 30 years ago
Alcohol: Drinks on occasion with her church group
Married; husband is a forester

FAMILY HISTORY:	Mother still living; has hypertension, had CVA 3 years ago Father died 2 years ago from emphysema Sister diagnosed with lupus 10 years ago
REVIEW OF SYSTEMS:	Skin: On questioning, she notes that when she is outside in the winter her hands turn white and occasionally even have a bluish color to them GI: Recurrent reflux on a regular basis “Food sticking” as described above Occasional diarrhea Eyes: She notes dryness of her eyes on occasion No visual changes have been noted General: Mild weight gain in the last year GU: Vaginal dryness noted in the last year Has noted dyspareunia in the last few months
PHYSICAL EXAMINATION:	General: Well-developed, well-nourished woman in no distress Vitals: BP 120/70, P56, RR 18, Temp 96.7° F HEENT: Noted that she has difficulty opening her mouth fully—says she can’t open very wide PERRLA, EOMI, Discs sharp Tympanic membranes intact Teeth normal in appearance Throat clear; tonsils present Neck: Supple, no bruits Heart: Slight bradycardia, RRR with no murmurs, rubs, or gallops Lungs: CTA Abdomen: Bowel sounds present in all 4 quadrants, no tenderness to palpation; no hepatosplenomegaly Extremities: Skin over fingers is shiny Skin creases and hair follicles are not present No cyanosis, clubbing noted No noticeable joint abnormalities GU: Dry vaginal mucosa noted; otherwise nothing abnormal
LABORATORY:	CBC: WBC 8,700 10^3/mL with normal differential Electrolytes: WNL ESR: 48 mm/hour ANA present in nucleolar pattern at 1:640

Which of the following can be predicted with regard to her esophageal disease?

- A. She will gradually improve over time without medical therapy.
- B. It is unlikely that her esophageal disease is related to her skin findings.
- C. Progression is likely to occur, and stricture formation with nearly complete loss of peristalsis will be seen in later forms of this disease.
- D. Treatment with H₂ blockers will provide complete recovery from the esophageal disease.
- E. The gastrointestinal findings with her illness will be usually confined to the esophagus.

10.

A 16-year-old male with a history of acne is brought in by his mother because of acute onset of difficulty swallowing since breakfast. He notes nothing unusual before this and had a good night's sleep. He says school is going very well, and he really enjoys being in the band. He did not notice a problem until he tried to eat his breakfast, which consisted of a chocolate pop tart and tortilla chips.

PAST MEDICAL HISTORY: Acne for about 2 years treated with topical agents initially and now on doxycycline 100 mg PO bid for the past 3 months. He has been adherent to his medication regimen and took the medication this morning.

SOCIAL HISTORY: In 10th grade at Holy Redeemer High School
Denies smoking or alcohol use
Makes mostly A's except a C in PE

FAMILY HISTORY: Father 45 and healthy
Mother 48; suffers from chronic depression
Sister 17 and pregnant

ROS: No fever, chills, night sweats
Has difficulty swallowing only solids, not liquids
No nausea or vomiting
No diarrhea
No skin changes

EXAMINATION: Well-developed, obese WM in no apparent distress
VS: BP 130/70, P 90, RR 16, Temp 98.5° F, Height 5' 10"
Weight 250 lbs
HEENT: PERRLA, EOMI
No oral thrush
No abnormalities seen
Neck: Supple, non-tender examination
Heart: RRR with 2/6 systolic flow murmur
(not new, heard in the past)
Lungs: CTA
Abdomen: Bowel sounds heard in all quadrants; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema
Skin: Acne is very mild compared to 3 months ago; no back lesions are present

Which of the following is the likely etiology of his swallowing complaint?

- A. Gastroesophageal reflux
- B. Scleroderma
- C. Cocaine abuse
- D. Pill-induced esophagitis
- E. Bulimia

11.

A 45-year-old woman with history of hypertension and diet-controlled diabetes presents with complaints of “heartburn” for several days. She has been taking over-the-counter agents for heartburn without much relief. Today, she is feeling better but is still worried about the possibility of something more serious.

PAST MEDICAL HISTORY: Negative except for hospitalizations for childbirth

MEDICATIONS: None except over-the-counter calcium carbonate for heartburn

SOCIAL HISTORY: Smokes 1 ppd of cigarettes
Drinks a 6-pack of beer on weekends
Works as a waitress at a cocktail bar

FAMILY HISTORY: Mother with peptic ulcer disease diagnosed at age 42
Father with hypertension
Son with lymphoma 10 years ago

REVIEW OF SYSTEMS: Deferred; see question below

PHYSICAL EXAMINATION: Well-appearing woman in no distress
VSS: Afebrile
HEENT: PERRLA, EOMI
Throat normal
Normal dentition
Neck: Supple, no thyromegaly
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Mild epigastric discomfort with palpation; no rebound
Extremities: No cyanosis, clubbing, or edema
GU: Normal female genitalia
Heme-positive rectal exam
Psych: Oriented x 3
No outward signs of depression

LABORATORY: Routine CBC, electrolytes ordered

All choices are indications for endoscopy except which of the following?

- A. Weight loss
 - B. Heme-positive stool
 - C. Rapid onset of dysphagia
 - D. Anemia
 - E. Improvement with therapeutic trial of anti-GERD medication
-

12.

A 30-year-old man with 1 year history of gastroesophageal reflux disease (GERD) returns for follow-up. He has a history with you as follows:

You first saw him a little over 9 months ago and recommended that he sleep with the head of his bed elevated by 6 to 9 inches, lose 10–15 pounds of weight, eat small meals, and eat dinner 3 hours before bedtime. You additionally strongly recommended that he stop smoking. At that time, you started him on ranitidine 150 mg twice daily.

He returned 1 month later saying that he had done everything that you recommended, but his GERD was still quite severe. You started him on omeprazole 20 mg daily and discontinued the ranitidine.

He returned a month after that and said his symptoms were markedly improved and that he could sleep flat without discomfort. He continued to lose weight and also quit smoking. You recommended he complete a 3-month course of therapy with omeprazole.

He returned 4 months later (now, off of omeprazole) and told you that his symptoms had all returned and actually seemed worse. You restarted his omeprazole for another 3-month course. His symptoms resolved and he was doing well.

He now returns again today, 2 weeks off therapy, reporting that his symptoms have returned again.

PAST MEDICAL HISTORY: Nothing significant except for motor vehicle accident when he was 18

SOCIAL HISTORY: Quit smoking as you recommended about 9 months ago
Alcohol: Glass of wine on the weekend
Employment: Works at a donut shop
Started exercising 6 months ago, now runs 3 miles every other day

FAMILY HISTORY: Mother 65, healthy
Father 66, known coronary artery disease, diabetes
Brother 32, GERD

ROS: Non-contributory

PHYSICAL EXAMINATION: Unremarkable, very healthy 30-year-old man

LABORATORY: EGD done 11 months ago showed grade 3 esophagitis (circumferential erosions and exudative lesions)

He tells you today that he is tired of taking these medications and realizes that he may need to take them chronically. He asks you what would be his best option for treatment of his GERD, based on his age and current health status.

Which of the following should be your response?

- A. Because he is young, it may be best to begin metoclopramide for long-term therapy.
 - B. He has severe disease that will likely require long-term medical therapy, so the best option is chronic proton pump inhibitor therapy.
 - C. Because he is young, the best therapy is over-the-counter medications such as calcium-containing antacids, because they are much safer than the proton pump inhibitors.
 - D. Omeprazole cannot be used for long-term maintenance therapy.
 - E. Even though he has frequent recurrences, it is likely that as he gets older these episodes will become less frequent; therefore, medical management with omeprazole is the most prudent choice to see if his GERD will resolve over time.
-

13.

A 48-year-old Caucasian male with a history of Barrett esophagus presents for follow-up. He has been doing fairly well on omeprazole 20 mg daily, which seems to reduce his GERD symptoms to a minimum. Additionally, he stopped smoking several years ago and has lost about 20 pounds in the last 4 years. Today, he is returning for the pathology report from his last endoscopy, performed last week. Clinically, he has been doing well.

LABORATORY: Pathology report: High-grade dysplasia confirmed by 2 pathologists.

Now that he has confirmed high-grade dysplasia, which of the following is one of the currently recommended treatment options?

- A. Increase dose of omeprazole to 40 mg and repeat EGD in 1 month; if no change, recommend surgery or ablation.
 - B. Increase endoscopy frequency to every 6 months and intervene in 1 year if changes still exist.
 - C. Perform EGD monthly and watch for changes.
 - D. Refer for surgery.
 - E. Apply low-grade beam radiation to the affected area.
-

14.

A 35-year-old personal trainer with a negative past medical history presents for a routine checkup. She is concerned because she says that, at a supermarket health fair last week, she took a “home breath test” for “ulcer bacteria,” which came up positive. She denies any symptoms of heartburn or excessive belching. She came in only out of concern from this testing.

PAST MEDICAL HISTORY: Negative; no hospitalizations

MEDICATIONS: Takes multi-vitamin daily

SOCIAL HISTORY: Works as a personal trainer; denies use of supplements
Never smoked
Drinks glass of wine rarely on special occasions
Single, sexually active

FAMILY HISTORY:	Father age 62 in good health Mother died age 55 of breast cancer Sister age 28 in good health																				
ROS:	No dyspepsia No diarrhea No chest discomfort No use of antacids No use of NSAIDs or iron products																				
PHYSICAL EXAMINATION:	<table> <tr> <td>Vitals:</td><td>BP 110/50; P 55; RR 18; Temp 97.8° F; Weight 110 lbs.; Height 5' 6" Healthy energetic woman in no distress</td></tr> <tr> <td>HEENT:</td><td>PERRLA, EOMI TMs clear Throat clear</td></tr> <tr> <td>Neck:</td><td>Supple No thyromegaly</td></tr> <tr> <td>Heart:</td><td>RRR with S₄ gallop</td></tr> <tr> <td>Lungs:</td><td>CTA</td></tr> <tr> <td>Abdomen:</td><td>Bowel sounds present in all quadrants; no hepatosplenomegaly; no tenderness to palpation</td></tr> <tr> <td>Extremities:</td><td>No cyanosis, clubbing, or edema</td></tr> <tr> <td>Breast:</td><td>No masses or abnormalities noted</td></tr> <tr> <td>GU:</td><td>Normal external genitalia; pelvic examination normal; nontender; no discharge</td></tr> <tr> <td>Rectal:</td><td>Normal; heme-negative</td></tr> </table>	Vitals:	BP 110/50; P 55; RR 18; Temp 97.8° F; Weight 110 lbs.; Height 5' 6" Healthy energetic woman in no distress	HEENT:	PERRLA, EOMI TMs clear Throat clear	Neck:	Supple No thyromegaly	Heart:	RRR with S ₄ gallop	Lungs:	CTA	Abdomen:	Bowel sounds present in all quadrants; no hepatosplenomegaly; no tenderness to palpation	Extremities:	No cyanosis, clubbing, or edema	Breast:	No masses or abnormalities noted	GU:	Normal external genitalia; pelvic examination normal; nontender; no discharge	Rectal:	Normal; heme-negative
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Breast:	No masses or abnormalities noted																				
GU:	Normal external genitalia; pelvic examination normal; nontender; no discharge																				
Rectal:	Normal; heme-negative																				
LABORATORY:	Pap smear sent																				

Which of the following can you tell her about her positive test for “ulcer bacteria”?

- A. Since she has known *Helicobacter pylori*, it is prudent to treat her with appropriate antimicrobial therapy.
 - B. Because she is asymptomatic, further investigation is not indicated or necessary; treatment is also not required.
 - C. Because the test she received in the supermarket is likely a false positive, it is best to repeat the test in the office with a more specific test for *Helicobacter pylori* to determine if therapy is indicated.
 - D. She should undergo endoscopy.
 - E. She should undergo barium swallow.
-

15.

A 25-year-old male presents with a history of deep burning epigastric pain for the past week. The pain is worse 1 to 3 hours after eating and is relieved by ingestion of antacids or food. The pain has also awakened him from sleep at night on occasion. He has no anorexia, dysphagia, vomiting, or weight loss. He smokes a pack of cigarettes daily. He denies use of NSAIDs.

PAST MEDICAL HISTORY: Gonorrhea at age 18
 Syphilis at age 19

SOCIAL HISTORY: Waiter at local Mexican restaurant
 Smoking history as above; started smoking at age 15
 No illicit drug use since age 19 (cocaine and marijuana); no IV-drug history
 Alcohol: Abstinent since age 19; attends regular AA meetings
 Sex: Uses condoms every time; no sexual encounters in 6 months

FAMILY HISTORY: Father 55 with diabetes
 Mother 60 with hypertension, mild CVA last year
 Sister 23 with no health problems

REVIEW OF SYSTEMS: No fever or chills
 No tachycardia
 Frequent dyspepsia
 Frequent burping
 No heartburn while lying flat
 No regurgitation
 No other pain besides the deep epigastric pain
 No nausea or vomiting
 No GU symptoms

PHYSICAL EXAMINATION: Vital signs: BP 130/80, P 75, RR 14, Temp 99° F, Ht 6' 1", Wt 220
 HEENT: PERRLA, EOMI
 TMs clear
 Throat clear
 Neck: Supple; no thyromegaly
 Heart: RRR with murmurs, rubs, or gallops
 Lungs: CTA
 Abdomen: Bowel sounds present in all 4 quadrants, slightly hyperactive;
 no hepatomegaly; spleen tip non-palpable; mid-epigastric
 tenderness to deep palpation; no rebound
 Extremities: No cyanosis, clubbing, or edema
 Skin: No rash, except mild acne
 Rectal: External hemorrhoids, heme negative
 GU: No lesions noted; normal male genitalia

LABORATORY: CBC: WBC 8,500 with 60% polys, 40% lymphocytes;
 hemoglobin 15.5 mg/dL, hematocrit is 55%
 MCV 90
 Electrolytes: Normal

Based on the history, physical, and laboratory tests, which of the following is the next step in evaluation of this patient?

- A. Non-invasive testing for *Helicobacter pylori*.
- B. Barium swallow.
- C. Esophagogastroduodenoscopy (EGD).
- D. Treat empirically with H₂ blockers; if no improvement in 2 weeks then test for *Helicobacter pylori*.
- E. Esophagogastroduodenoscopy (EGD) with biopsy, because this is the only definitive method to determine if *Helicobacter pylori* is the etiology of his symptoms.

16.

A 50-year-old man presents for follow-up of a gastric ulcer diagnosed 8 weeks ago. It was a relatively large, non-bleeding ulcer located in the duodenum. *Helicobacter pylori* was found in the biopsy specimen, as well as with a rapid urease test on the clinical specimen taken at biopsy. He took 14 days of a prepackaged triple-therapy agent (Prevpac®—consists of 30 mg lansoprazole, 1 g amoxicillin, and 500 mg clarithromycin). He was adherent with his medication regimen and reports no problem taking the medication correctly. He returns for follow-up 6 weeks after the completion of therapy.

PAST MEDICAL HISTORY: No prior episodes of ulcer disease
HTN for 20 years; currently on propranolol 20 mg q day

SOCIAL HISTORY: Quit smoking 6 weeks ago; before then, 1 pack/day for 30 years
No alcohol in last 6 months
Works in a staple factory; packages staples

FAMILY HISTORY: Noncontributory

ROS: All symptoms now resolved
No dyspepsia
No chest discomfort
No epigastric pain
No difficulty with nocturnal pain
No difficulty with pain after eating

PHYSICAL EXAMINATION: VSS stable and documented correctly for Medicaid rules
HEENT: No problems noted; non-icteric
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present in all 4 quadrants, no hepatosplenomegaly, no tenderness elicited on deep palpation of epigastric area
Extremities: No cyanosis, clubbing, or edema
Rectal: Heme-negative

Which of the following tests should he be scheduled for now as follow-up?

- A. None; patients who are treated with triple therapy for *H. pylori* do not require follow-up assessment for cure because known cure rates with current regimens are nearly 95%.
- B. Repeat endoscopy is indicated because the other non-invasive tests are likely to still be false-positive this early after therapy is completed.
- C. Convalescent serology for *H. pylori* to look for 4-fold fall in titers.
- D. A urea breath test is indicated at this point to determine cure.
- E. It is too early to test for cure; you must wait until 3 months after therapy is complete.

17.

A 45-year-old man presents with recently diagnosed peptic ulcer disease. His ulcer was found on EGD and was in the 2nd portion of the duodenum. Also on EGD, he was noted to have fairly significant esophagitis. He had presented with an upper gastrointestinal bleed yesterday. On further questioning, he relates that he has been doing well except for dyspepsia on occasion after eating “spicy” foods and has noted increasing episodes of diarrhea for the last few months.

PAST MEDICAL HISTORY: Noncontributory

FAMILY HISTORY: Mother with peptic ulcer disease in her mid-40s, died at age 50 of severe upper GI bleed
Brother Hx of peptic ulcer disease

SOCIAL HISTORY: Works as a carpenter
Smokes 1 ppd x 30 years
Alcohol: 6 pack of beer on weekends

REVIEW OF SYSTEMS: Negative for fever, chills
Denies night sweats
No tachycardia
No vomiting
No burning on urination
No hair loss or changes in hair character

PHYSICAL EXAM: Vital signs: BP 140/50, P 88, RR 15, Temp 98.7° F, Ht 5' 5", Wt 170 lbs
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple, no thyromegaly
Heart: RRR with murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present in all 4 quadrants, slightly hyperactive; no hepatomegaly, spleen tip non-palpable, mid-epigastric tenderness to deep palpation; no rebound
Extremities: No cyanosis, clubbing, or edema
Skin: No rash
Rectal: Heme-positive
GU: No lesions noted; normal male genitalia

LABORATORY: A rapid urease test was done on the biopsy specimen and was positive for *H. pylori*.

Based on his history and findings at EGD, which of the following tests or diagnostic studies should you order now?

- A. Computed tomography of the abdomen to rule out malignancy.
- B. Repeat EGD in 5 days.
- C. Barium swallow.
- D. Fasting serum gastrin level.
- E. Follow-up *H. pylori* serology in 1 month to look for cure.

18.

A 60-year-old Asian male who immigrated to the United States in 1950 was recently diagnosed with gastric carcinoma that is distal in character. He has started adjuvant combination chemotherapy. His oldest son comes in with his father today and asks what things he, the son, can do to “prevent getting this type of cancer.”

All of the following are risk factors for gastric carcinoma except:

- A. Pernicious anemia
- B. *H. pylori* infection independent of known ulcer disease
- C. Blood type A
- D. Alcohol consumption
- E. Diet low in fruits and vegetables

19.

A 25-year-old woman presents with a history of recurrent diarrhea. Recently, she has become concerned because the diarrhea has occurred while she is sleeping. Additionally, she notes that she has had abdominal pain on occasion. The pain is relieved by defecation. Usually the pain is located in the right lower quadrant. She describes it as a chronic nagging type pain (“colicky”). On further questioning, she relates a 10-lb weight loss over the past 5 months. Her husband has noted that she sweats “a lot” during the night, and occasionally she has had to change her bedclothes. Also, she reports that on occasion she is “feverish” but has not taken her temperature. She has not traveled anywhere outside of Colorado where she lives, but she and her husband did go camping during the past summer at Pike’s Peak. Their last camping trip was 3 months ago. They boiled water for drinking while camping and did not go swimming. Her husband has not been ill.

MEDICAL HISTORY: History of frequent episodes of diarrhea intermittently over the past 5 years
On oral contraceptives; no change in medication in 6 years
Allergies: None

FAMILY HISTORY: Mother with episodes of diarrhea on occasion
Father with coronary artery disease, hypertension
Sister healthy, no problems
Brother healthy, no problems

SOCIAL HISTORY:	Works for a telecommunication company in Colorado Springs, CO; does phone-messaging services Lives with husband and 2 dogs in the city limits Dogs are healthy, no problems Never has smoked Drinks a margarita on weekends
ROS:	Most reviewed above No blood noted in stool Stools of normal caliber when she is not having diarrhea
PHYSICAL EXAMINATION:	Well-appearing woman in no distress BP 110/65, P 68, RR 16, Temp 99.2° F HEENT: PERRLA, EOMI Throat normal Normal dentition Neck: Supple, no thyromegaly Heart: RRR without murmurs, rubs, or gallops Lungs: CTA Abdomen: Bowel sounds hyperactive, present in all 4 quadrants equally; mild epigastric discomfort with deep palpation; no rebound; no hepatosplenomegaly Extremities: No cyanosis, clubbing, or edema GU: Normal female genitalia Heme-positive rectal exam
LABORATORY:	CBC: WBC 12,500 with 60% polys, 20% lymphocytes, 15% monocytes Hemoglobin 10.5 g/dL Platelets: 450,000 Stool Studies: Marked number of fecal leukocytes seen on direct smear; negative for enteric pathogens, ova and parasites, <i>Giardia</i> -specific antigen, and <i>Clostridium difficile</i> toxin Electrolytes: Normal Liver transaminases: Normal for age ESR: 50

Based on the history and physical examination, which of the following studies is most likely to confirm your diagnosis?

- A. MRI of the abdomen and pelvis.
 - B. Endoscopic laparotomy.
 - C. Repeat ova and parasite studies x 3.
 - D. Rectal biopsy.
 - E. Colonoscopy with upper endoscopy.
-

20.

A 30-year-old Hispanic male with history of Crohn disease presents for usual routine checkup. He has been doing very well on his current regimen, which includes sulfasalazine and metronidazole. Initially during the office visit he has no complaints. However, during the end of your examination, he jokes that he and his wife have been trying to get pregnant during the last year without any luck. He says that they have been reading suggestions in books and on the Internet without any luck. His wife is healthy—they have had 2 children, now ages 8 and 7. His Crohn's was diagnosed 6 years ago, and he essentially has been in remission for 5 years on his current therapy. He asks if his Crohn's could be related to the inability to conceive.

PAST MEDICAL HISTORY: As above; before diagnosis of Crohn's, had intermittent diarrhea for 5–6 years

MEDICATIONS: Sulfasalazine 1 gram PO bid
Metronidazole 500 mg PO bid

SOCIAL HISTORY: Works as photographer
Lives with wife and 2 children in El Paso, TX

FAMILY HISTORY: Noncontributory

REVIEW OF SYSTEMS: Sexual libido has been normal
No problems with erections
He wears "briefs"
No change in ejaculate
No rash
No urinary complaints

PHYSICAL EXAMINATION: Muscular athletic male in no distress
BP 125/62, P 56, RR 12, Temp 98.3° F
HEENT: PERRLA, EOMI,
Tympanic membranes clear
Throat clear
Neck: Supple, no masses
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present in all 4 quadrants, no tenderness,
no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema
GU: Normal male genitalia, Tanner 5 staging
No testicular masses
Rectal: Heme-negative, tone normal
Neurological: Reflexes equal and symmetrical throughout; no sensory or motor
deficits noted

LABORATORY: CBC: Normal
Electrolytes: Normal
Liver function tests: Normal
Semen analysis: Volume 4 mL; pH 7.5; sperm count 10 million/mL with
85% motile
(Normal values volume 2–5 mL; pH 7.2–8.0; sperm
count 70–150 million/mL; sperm activity > 80% is normal)

Based on your history, physical examination, and laboratory studies, which of the following would be the next best course of action?

- A. Formal urological evaluation.
 - B. Fertility testing of his wife.
 - C. Stop sulfasalazine and use another agent for control of his disease.
 - D. Check serum testosterone.
 - E. Have him wear boxers instead of briefs.
-

21.

A 35-year-old man with ulcerative colitis (UC) presents for follow-up. He has been doing well, except recently he had an exacerbation with severe bleeding and anemia. He has a history of pancolitis, and on his recent colonoscopy, the biopsy showed high-grade dysplasias in flat mucosa. He did not have a mass lesion to biopsy. Previous colonoscopies have shown mild dysplasia with inflammation. Since his recent exacerbation, he has been doing well without any further episodes of bleeding. Of significance is that his last exacerbation prior to this was over 10 years ago.

PAST MEDICAL HISTORY: Besides UC, stable

SOCIAL HISTORY: Smokes 1/2 ppd x 10 years
 Abstains from alcohol
 Married for 10 years
 Works as a carpet layer

FAMILY HISTORY: Mother, healthy, age 65
 Father, healthy, age 70
 No family history of colon cancer or other malignancies

ROS: Negative for weight loss
 Negative for fever, chills
 Negative for rash
 Negative for joint complaints

PHYSICAL EXAMINATION: Generally well-appearing man
 VSS: Afebrile
 HEENT: PERRLA, EOMI
 Tympanic membranes clear
 Throat clear
 Neck: Supple, no bruits
 Heart: RRR without murmurs, rubs, or gallops
 Lungs: CTA
 Abdomen: Benign, no tenderness, no hepatosplenomegaly
 Extremities: No cyanosis, clubbing, or edema
 GU: Normal male genitalia
 No testicular masses
 Rectal: Heme-negative, brown stool
 Neuro: Reflexes equal and symmetrical throughout; no sensory or motor deficits noted

LABORATORY:	CBC:	WBC 8,500 with 50% polys, 50% lymphs
	Hemoglobin:	13 mg/dL (after transfusion last week)
	Platelets:	275,000
	Electrolytes:	Normal
	Liver function tests:	ALT 40 U/L; AST 23 U/L; alkaline phosphatase 180 mU/mL; Albumin 3.6 mg/dL; total bilirubin 0.5 mg/dL

Based on the findings, which of the following is the next step in management?

- A. Reinstitute maintenance therapy and repeat colonoscopy in 6 months to see if the “dysplasia” is just a side effect of his exacerbation.
- B. Reinstitute maintenance therapy, assuming that he will continue to do well long-term based on his relapse rate of every 10 years.
- C. Continue routine colonoscopy on a yearly basis unless another exacerbation occurs; then repeat colonoscopy at that time.
- D. Recommend referral to surgery.
- E. Repeat colonoscopy in 2 weeks.

22.

An 18-year-old hip-hop artist presents with diarrhea for the past 2 weeks. She says that she noted the diarrhea began while she was performing in Mexico. You are the physician for the cruise line on which she is performing now.

She tells you that she has had a low-grade temperature since returning from Mexico. She did not eat any fresh vegetables. She likes to eat beef jerky and prefers the “extra salty” version. She drank only bottled water and a soft drink for which she is a national spokesperson. She did have these drinks poured over ice, but she thought that the “frozen stuff would kill the cooties.”

She has not noted any blood in her stool. She has lost about 2 pounds in the last week.

PAST MEDICAL HISTORY: Syphilis at the age of 15
Depression since age 16; on no medications at the moment

SOCIAL HISTORY: Sexually active with multiple partners
Smokes 1 ppd for the past 3 years
Denies illicit drug use
Denies use of alcohol

FAMILY HISTORY: Mother with alcoholism; they are estranged at the moment
Father left when she was 2 years of age
Sister healthy 20-year-old nun

REVIEW OF SYSTEMS: Diarrhea is intermittent and she has crampy abdominal pain on occasion
No rash
No burning on urination
No chills
Diminished appetite

PHYSICAL EXAMINATION:	General:	Pink hair with numerous piercings
	VS:	Temp 100° F, BP 110/70, Pulse 95, RR 16
	HEENT:	PERRLA, EOMI
		Throat clear
	Heart:	RRR with no murmurs, rubs, or gallops
	Lungs:	CTA
	Abdomen:	Hyperactive bowel sounds, nontender examination; no hepatosplenomegaly
	GU:	Normal female genitalia, no tenderness on bi-manual palpation; no discharge noted
	Extremities:	No cyanosis, clubbing, or edema
	Rectal:	Heme-positive (slight)
LABORATORY:	Check for stool leukocytes:	Positive
	<i>Giardia</i> specific antigen:	Negative
	Stool culture:	<i>Salmonella enteritidis</i> β -lactamase producing

Based on this information, which of the following is the best treatment?

- A. Ciprofloxacin 500 mg bid for 10 days
 - B. Erythromycin 500 mg bid for 5 days
 - C. Tetracycline 500 mg qid for 10 days
 - D. Amoxicillin 500 mg tid for 10 days
 - E. No antibiotic therapy
-

23.

A 19-year-old lifeguard at the local water park in your area presents for his final routine hepatitis B vaccine before going to college. Recently, there has been an outbreak of diarrhea at the water park confirmed as *E. coli* O157:H7. He is concerned about the diarrhea at the park and asks what he can do to limit his exposure. You explain that the outbreak has been linked to hamburgers at the park that were undercooked. He is concerned because he eats hamburgers twice daily. You explain that it is unlikely that he will become ill but to call you at the first sign of diarrhea.

The next morning, you receive a call from him saying that he has diarrhea. It is bloody in character. You tell him to come in right away.

He arrives and is ill appearing. He says the diarrhea started early this morning, and he has gone about 5 times since. He noted large amounts of blood in the initial stool, but it has since tapered off to a few streaks. He says he is lightheaded and dizzy.

PAST MEDICAL HISTORY:	Healthy
SOCIAL HISTORY:	As above
	Doesn't smoke
	Doesn't drink alcohol
	Not sexually active
FAMILY HISTORY:	Non-contributory
ROS:	Fever, chills noted early this morning
	Weight loss of approximately 5 pounds since yesterday, he thinks
	Dizzy when standing
	No vomiting

PHYSICAL EXAMINATION: Lying down: BP 120/80, Pulse 80
 Sitting up: BP 100/65, Pulse 110
 Temperature: 99.5° F, RR 18
 HEENT: PERRLA, EOMI
 Tympanic membranes clear
 Throat clear; mucous membranes dry
 Neck: Supple, no bruits
 Heart: RRR without murmurs, rubs, or gallops
 Lungs: CTA
 Abdomen: Benign, no tenderness, no hepatosplenomegaly
 Extremities: No cyanosis, clubbing, or edema
 GU: Deferred
 Neurological: Reflexes equal and symmetrical throughout; no sensory or motor deficits noted

LABORATORY: All pending

Assuming that this is going to be invasive diarrhea with *E. coli* O157:H7 and after starting supportive fluid therapy, which of the following antibiotics is the best treatment choice for his infection?

- A. Penicillin 3 million units IV q 4 hours.
- B. Ceftriaxone 1 gm IV q day.
- C. Await sensitivities before starting therapy.
- D. Ciprofloxacin 400 mg IV bid.
- E. Give supportive care only.

24.

A 45-year-old man presents with new onset of a debilitating neurological syndrome. He has been healthy until about a month ago when he had gastroenteritis. He says the gastroenteritis lasted about a week and then resolved without any specific therapy. Most of the disease was a diarrheal illness. He has a puppy that also had diarrhea just before he became ill. His diarrhea was bloody in character, and he had crampy abdominal pain. (As opposed to the puppy's diarrhea.) The diarrhea lasted about 5 days. The dog's disease also lasted about that long.

He noted painless onset of mild weakness in the lower extremities, often accompanied by tingling paresthesias in his toes and fingers. He became aware of this first with difficulty walking up stairs. Over a period of days, the weakness progressed rapidly and ascended from the lower extremities to the upper extremities and finally to the face.

PAST MEDICAL HISTORY: Noncontributory

SOCIAL HISTORY: Works as a harmonica player for a popular jazz band
 Smokes 3 packs of cigarettes a day
 Drinks only on weekends; about a 6-pack of beer
 No travel history

FAMILY HISTORY: Noncontributory

REVIEW OF SYSTEM: No fevers, no chills
 No weight loss

No recent diarrhea
No vomiting
No rashes
No headache
No vision changes

PHYSICAL EXAMINATION: BP 110/70, P100, RR 18, Temp 98.5° F

HEENT: PERRLA, EOMI
Tympanic membranes clear
Throat clear
Neck: Supple, no bruits
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Benign, no tenderness, no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema
Neuro: Deep tendon reflexes are not present
He has lost proprioceptive perception in his arms and legs
He has symmetrical motor weakness of both proximal and distal muscles of all the extremities
He has bilateral VII nerve palsies
Currently, swallowing and breathing are intact

Which of the following organisms is the likely antecedent to this constellation of findings?

- A. *Campylobacter jejuni*
- B. *Shigella dysenteriae*
- C. *Salmonella enteritidis*
- D. *E. coli* O157:H7
- E. Rotavirus infection

25.

A 20-year-old woman presents with a history of chronic diarrhea for over a year. She has complained of diarrhea on many visits to your office. Listed below is the laboratory work that has been done to date, including a few tests done today. The diarrhea is intermittent in character, lasts 3–5 days, and then her stools gradually return to normal. She has not noticed any blood in the stool. She has no nausea or vomiting. She has no other health problems. No one that she lives with (her boyfriend and 1-year-old) have problems with diarrhea. She has not had significant weight loss. The stools are not foul smelling and are usually fairly watery in character.

PAST MEDICAL HISTORY: History of depression at age 16 requiring hospitalization; since then doing well on fluoxetine (Prozac) 20 mg q day

SOCIAL HISTORY: Beauty college student
Smokes 1/2 pack day for 3 years
Alcohol—doesn't drink

FAMILY HISTORY: Mother healthy, no health problems
Father healthy, no health problems
Sister anorexia
Brother bulimia

REVIEW OF SYSTEMS:	No fever, chills No sore throats No increased nervousness No chest discomfort No wheezing No stomach pain No rashes No travel
PHYSICAL EXAMINATION:	Well-appearing WF BP 120/60, P 64, RR 18, Temp 98.3° F HEENT: PERRLA, EOMI, sclera non-icteric Neck: Supple; no masses Heart: RRR without murmurs, rubs, or gallops Lungs: Clear to auscultation Abdomen: Mild epigastric tenderness to deep palpation Extremities: No cyanosis, clubbing, or edema GU: Heme-negative stool; scant amount of stool in vault
LABORATORY:	CBC x 2 normal Electrolytes normal x 3 Liver transaminases normal x 2 Stool ova and parasites and fecal leukocytes x 3—all negative <i>C. difficile</i> toxin negative Chem 20—all within normal limits TSH normal T4 normal Gastrin level: normal <i>Giardia</i> -specific antigen negative Sigmoidoscopy negative Sodium hydroxide added to stool: turns red

Which of the following do the history, physical, and laboratory findings suggest?

- A. Bisacodyl abuse
 - B. Irritable bowel syndrome
 - C. Phenolphthalein abuse
 - D. Carcinoid
 - E. Need to proceed with colonoscopy
-

26.

A 40-year-old Irish-American man with a history of celiac disease presents with complaint of increasing fatigue for the past 3 months. He reports he has been compliant with his diet. He was not diagnosed until several years ago. His celiac disease resulted in growth retardation as a child. He occasionally suffers from dermatitis herpetiformis. He has a pale pallor to his skin and he looks “run down” to you.

PAST MEDICAL HISTORY: As above
MEDICATIONS: None
SOCIAL HISTORY: Married, with 2 children
Works as a leprechaun
Has never smoked
Drinks an occasional pint of beer

FAMILY HISTORY: Sister has celiac sprue also; found to have HLA-B8
Mother and father healthy

ROS: Severe fatigue
Dyspnea on exertion with walking 1 block
No chest pain
No swelling in his legs
No constipation

PHYSICAL EXAMINATION: BP 120/60, P100, RR 18, Temp 99.0° F
HEENT: PERRLA, EOMI, sclera non-icteric, very pale conjunctiva
Neck: Supple; no bruits; no masses
Heart: RRR with new II/VI systolic flow murmur
Lungs: Clear to auscultation
Abdomen: Mild epigastric tenderness to deep palpation
Extremities: No cyanosis, clubbing, or edema
GU: Heme-negative stool

LABORATORY: CBC: WBC 8,500 with 60% polys, 30% lymphs
Hemoglobin 8.5 mg/dL (previous hemoglobin 14 mg/dL)
Rest of CBC pending

Based on your extensive knowledge of celiac disease and putting together the physical exam findings with the laboratory, which of the following is the most likely diagnosis?

- A. B₁₂ deficiency anemia
 - B. Toxicity from wearing green leprechaun paint
 - C. Celiac sprue exacerbation
 - D. Iron deficiency anemia
 - E. Primary intestinal lymphoma
-

27.

A 45-year-old man presents with a wasting type illness for the past 6 months. He describes arthralgias and frank arthritis of the larger joints that seem to come and go. He has fever associated with these episodes up to 102° F on occasion. He has had marked episodes of diarrhea over the past 6 months and has lost 20 pounds. Additionally, he describes “swollen glands” for the past few months.

PAST MEDICAL HISTORY: Nothing at all; a very healthy man; athletic

SOCIAL HISTORY: Lives in Philadelphia, PA
Works as a guard at the Liberty Bell
Married with 3 children, ages 14, 12, 10

FAMILY HISTORY: Mother 70 with hypertension
Father 75 with diabetes, hypertension

REVIEW OF SYSTEMS: Difficulty seeing at night—he noticed this in the past month
Swelling of the joints noted on occasion
Noted increased bleeding of his gums

PHYSICAL EXAMINATION: BP 120/60, P64, RR 18, Temp 99.0° F
HEENT: PERRLA, EOMI, sclera non-icteric
Teeth: Gingivitis present
Mouth: Glossitis present
Neck: Supple; no bruits
Heart: RRR without murmurs, rubs or gallops
Lungs: Clear to auscultation
Abdomen: Hyperactive bowel sounds; distended abdomen; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema; joint swelling noted of the right knee; no frank deforming arthritis noted
GU/Rectal: Mild heme-positive stool; no melena
Skin: Diffuse hyperpigmentation, particularly around the orbital and malar face areas

LABORATORY: Significant tests for you to consider: Sudan stain of stool shows malabsorption
Serum carotene level 5 mg/dL (normal 40–180 mg/dL)
Serum albumin 2.4 mg/dL
Prothrombin time prolonged at 16 secs

Further workup is done and a biopsy is taken of the small intestine that shows the lamina propria contains macrophages containing periodic acid-Schiff (PAS) material.

Based on these findings, which of the following is your diagnosis?

- A. Celiac sprue
- B. AIDS-related complex
- C. Infection with *Tropheryma whippeli*
- D. *Mycobacterium avium intracellulare* infection
- E. Abdominal angina

28.

A 45-year-old African-American woman presents for her routine job screening physical examination. She is applying to be a security guard at her local airport. She is very healthy and works out at her local gym on a regular basis.

PAST MEDICAL HISTORY: Negative except for hospitalizations for birthing her 2 children, which required C-sections
On no medications

SOCIAL HISTORY: Lives with her husband and 2 sons, ages 15 and 13
Has never smoked
Drinks Mai Tais on a regular basis; 1 q day

FAMILY HISTORY: Father diagnosed at age 48 with colon cancer; died 2 years later
Mother 70, healthy
Brother 42, obese

REVIEW OF SYSTEMS: No headaches
No sore throat
No eye changes
No muscle aches or pains
No chest pain
No cough
No diarrhea
No constipation
No rashes
Poor dentition—has been to dentist multiple times in last few months for cavities

PHYSICAL EXAMINATION: Well-developed, well-nourished woman in no distress
BP 110/70, P 65, RR 14, Temp 98.6° F
HEENT: PERRLA, EOMI
TMs clear
Throat clear; poor dentition noted
Neck: Supple, no masses
Heart: RRR with murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Auscultation normal; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema
GU: Normal female external genitalia; pelvic examination:
Normal findings; non-tender exam
Rectal: Results pending

Which of the following would be the most appropriate colorectal cancer screening for her?

- A. Begin annual fecal occult blood testing and flexible sigmoidoscopy every 5 years starting at age 50.
 - B. Begin annual fecal occult blood testing and flexible sigmoidoscopy every 5 years starting at age 60.
 - C. Colonoscopy every 5 years beginning now.
 - D. Colonoscopy every 5 years beginning at age 50.
 - E. Colonoscopy every 10 years beginning now.
-

29.

A 49-year-old man presents after undergoing a screening colonoscopy last week. It was normal except for the finding of a 0.5 cm polyp. He is healthy otherwise and has no risk factors for colorectal carcinoma except for his age. He reports that he exercises regularly and eats plenty of fruits and vegetables.

PAST MEDICAL HISTORY: Normal treadmill stress test done 3 years ago; otherwise no problems
HTN, benign

MEDICATIONS: ECASA q daily
Propranolol 20 mg PO q daily

FAMILY HISTORY: Negative for any type of GI malignancy

SOCIAL HISTORY: Works as a tailor
Lives with his mother

REVIEW OF SYSTEMS: Noncontributory

PHYSICAL EXAMINATION: BP 130/50, P 88, R 14, Temp 98.5° F
HEENT: PERRLA, EOMI
Throat clear
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema

LABORATORY: Path report from biopsy: Hyperplastic polyp

Based on these findings, which of the following do you recommend?

- A. Repeat colonoscopy in 3–6 months to be sure the polyp was completely resected.
 - B. Repeat colonoscopy in 1 year.
 - C. Order CEA level.
 - D. Repeat colonoscopy in 3 years.
 - E. Repeat colonoscopy in 10 years.
-

30.

You are seeing a 48-year-old Puerto Rican man with a history of colonoscopic excision of a 3 cm sessile polyp earlier today. He is otherwise healthy and has not had any health issues come up in the past 3 years that you have been following him. He has a history of mild hypertension controlled with diet but otherwise has not been into the office except for an occasional upper respiratory infection.

PAST MEDICAL HISTORY: As above

SOCIAL HISTORY: Works as an attorney
Smokes 2 ppd of cigarettes
Drinks 3–4 beers nightly

FAMILY HISTORY: Father, healthy
Mother, 75, lives in Puerto Rico, healthy
No siblings

REVIEW OF SYSTEMS: No headache
No sore throat
No fevers
No night sweats
No chest discomfort
Chronic smoker-type cough; worse in the morning on awakening
No weight loss

PHYSICAL EXAMINATION: Had complete physical 2 months ago; nothing has changed since that visit

LABORATORY: Pathology shows resection of a large 3-cm sessile polyp with villous tissue.
The pathologist reports that she is reasonably sure the polyp was completely removed—the edges are distinct; no malignancy was found in the biopsy taken.

Based on these findings, which of the following should be your recommendation?

- A. Schedule for routine colonoscopy in 5 years.
- B. Schedule for routine colonoscopy in 10 years.
- C. Repeat colonoscopy in 1 year.
- D. Repeat colonoscopy in 3–6 months to be sure that resection was complete.
- E. Refer to surgeon for surgical resection of affected area.

31.

A 52-year-old man presents for routine colonoscopy.

PAST MEDICAL HISTORY: Insulin-dependent diabetes for 4 years
Hypertension for 3 years
Hyperlipidemia for 2 years

SOCIAL HISTORY: Works as a waiter
Smokes 2 ppd of cigarettes
Drinks 3–4 beers nightly

FAMILY HISTORY:	Father 80, a minister with diabetes Mother 75, lives in Florida, osteoporosis Sister 55 with SLE
REVIEW OF SYSTEMS:	No headache; No sore throat No fevers; No night sweats No chest discomfort Chronic “smoker” type cough; worse in the morning on awakening No weight loss
PHYSICAL EXAMINATION:	BP 130/60, P 90, RR 18, Temp 99.0° F HEENT: PERRLA, EOMI, sclera non-icteric Neck: Supple; no bruits; no masses Heart: RRR with new II/VI systolic flow murmur (old) Lungs: Clear to auscultation Abdomen: Mild epigastric tenderness to deep palpation; positive bowel sounds in all 4 quadrants, no hepatosplenomegaly Extremities: No cyanosis, clubbing, or edema GU: Normal male; no masses Rectal: Deferred because about to have colonoscopy

PROCEDURES:

Colonoscopy: 1 suspicious polyp was found in the right colon near the sigmoid junction; completely resected. He returns in 1 week for his pathology report. These findings show:

The polyp was completely excised and submitted in toto for pathological examination. The polyp was fixed and sectioned so that it was possible to accurately determine the depth of invasion, grade of differentiation, and completeness of the excision of the polyp. Unfortunately, carcinoma is found in the tissue. The cancer is well differentiated. There is no vascular or lymphatic involvement. The margin of the excision is not involved.

Repeat colonoscopy in 3 months shows no residual abnormal tissue at the polypectomy site.

Based on your findings, which of the following should be your recommendation?

- A. Repeat colonoscopy in 3 months.
- B. Repeat colonoscopy in 6 months.
- C. Determine CEA levels.
- D. Refer for surgical intervention and chemotherapy.
- E. Because the incidence of recurrent cancer is small, no other laboratory or imaging studies are indicated for this patient; follow-up should proceed as with benign adenomas.

32.

A 55-year-old woman has been diagnosed with colon cancer. She was diagnosed by colonoscopy and had a left hemicolectomy performed 3 days ago. You are seeing her in the hospital to discuss the results of her pathology specimens from surgery. Other than this new diagnosis, she has been very healthy. The cancer was found on a routine screen, and she had not been having any symptoms.

Pathology report: Cancer was present in the left portion of the colon just proximal to the sigmoid colon and has spread to the regional lymph nodes. Only 2 nodes are positive.

CT Scan: No evidence of distant metastases; liver is normal in appearance. No lung, bone, or rectal mets.

Which of the following treatment options would you recommend?

- A. Her left hemicolectomy alone is adequate therapy.
- B. Besides the hemicolectomy, institute local radiation therapy.
- C. Start adjuvant chemotherapy and initiate local radiation therapy.
- D. Start adjuvant chemotherapy without radiation therapy.
- E. She will need to return to surgery for a complete colectomy with local radiation therapy.

33.

An 85-year-old African-American woman presents to your office with complaints of lower abdominal pain. Her pain is crampy and bilateral but worse on the right side. The pain started approximately 24 hours ago. The location has not changed, but the intensity of the pain increased overnight. The pain is accompanied by nausea. She vomited 2 or 3 times the preceding day. She also reports diarrhea and chills during the past 24 hours.

PAST MEDICAL HISTORY: Coronary artery disease, for which she had angioplasty 3 years ago; no angina symptoms since
Diverticulosis without history of diverticulitis since 1989
She has well-controlled hypertension, gout, and chronic low back pain
Past surgical history: Hysterectomy/bilateral salpingo-oophorectomy in 1976

MEDICATIONS: Atenolol 50 mg q day
Allopurinol
Tramadol prn
ECASA 81mg q day

SOCIAL HISTORY: No alcohol consumption
No cigarette smoking; but does chew tobacco
She has no history of drug abuse

FAMILY HISTORY: No living relatives; doesn't know her parents or siblings

PHYSICAL EXAMINATION: Temp 101.3° F, P 128 bpm, BP 127/50, RR 18, oxygen saturation of 98% on room air; she is 5 feet tall and weighs 163 pounds; she appears to be in mild distress secondary to pain; she is alert and fully oriented

HEENT: Her oral mucosa appears dry; PERRLA, EOMI

Neck: No masses, no bruits

Heart: RRR with tachycardia

Lungs: Clear to auscultation

Abdomen: Relatively diffuse tenderness over the lower abdomen, more severe over the right lower quadrant; the abdomen was soft without hepatomegaly or splenomegaly; there was no rebound or guarding; bowel sounds were hypoactive

Rectal: Heme-negative stool

Neurological examination was intact.

LABORATORY:

Leukocyte count was $10.0 \times 10^9/L$ with 84% neutrophils; hemoglobin concentration was 12.1 g/dL; platelet count was 181,000
Chemistries: sodium 143 mEq/L, serum potassium 4.6 mEq/L, serum chloride 108 mEq/L, serum bicarbonate 21 mEq/L, blood urea nitrogen 44 mg/dL, serum creatinine 1.5 mg/dL, glucose 169 mg/dL
Amylase 113 U/L, lipase 50 U/L, aspartate aminotransferase 44 U/L (14–36), alanine aminotransferase 59 U/L (9–52), alkaline phosphatase 68 U/L, and low-density lipoprotein 784 U/L (313–618)
Urinalysis showed 1–2 white blood cells, +1 leukocyte esterase, +1 bacteria, and nitrite negative

Electrocardiogram showed sinus tachycardia with a rate of 103 without ST segment or T wave changes
Chest x-ray showed minimal bibasilar atelectasis
Flat and upright abdomen x-ray was negative
Ultrasonography of the right upper quadrant showed no signs of cholecystitis
Computed tomography of the abdomen without intravenous contrast showed mild circumferential mural thickening of the terminal ileum, mild inflammation of mesenteric fat, the appendix not visualized, and no free or localized fluid

Which of the following is the most likely diagnosis based on these findings?

- A. Diverticulitis
- B. Appendicitis
- C. Crohn disease
- D. Colon carcinoma
- E. Viral gastroenteritis

34.

A 55-year-old Caucasian woman presents with history of abdominal complaints off and on “for years.” She presents with acute onset of severe pain in her left abdomen. She has fever to $101^\circ F$ at home and appears ill. She has had some associated diarrhea with the pain.

PAST MEDICAL HISTORY: History of GI disease. See image from endoscopy in 2000.
(See Appendix B color image Figure 2.)



SOCIAL HISTORY: Housewife; volunteers at her church quite often
Lives at home with her husband

FAMILY HISTORY: Mother died at age 78; renal failure
Father died at age 25; industrial accident

REVIEW OF SYSTEMS: No headache
No sore throat
No runny nose; congestion
Occasional dry cough
No tachycardia
No chest pain
No constipation
Diarrhea frequently, usually with emotional upset
No burning on urination

PHYSICAL EXAMINATION: BP 130/88, P 100, RR 18, Temp 101.5° F
Ill-appearing woman in mild distress
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple; no masses
Heart: RRR without murmurs, rubs, or gallops
Lungs: Clear to auscultation
Abdomen: Hyperactive bowel sounds; tender and palpable mass in left lower quadrant; rebound tenderness noted and involuntary abdominal rigidity noted
Rectal: Heme-positive
Extremities: No rashes, cyanosis, or edema

LABORATORY: Pending

Based on her physical findings, which of the following is the most appropriate next step?

- A. Emergent colonoscopy.
 - B. Emergent barium enema.
 - C. Bowel rest only is adequate at this point.
 - D. Bleeding scan.
 - E. Abdominal CT scan.
-

35.

All of the following are indications for colonoscopy except:

- A. Bright red blood on toilet paper in a 25-year-old man
- B. Gross lower gastrointestinal bleeding in a 60-year-old man
- C. *Streptococcus bovis* bacteremia
- D. Hemoccult-positive screen in a 50-year-old woman
- E. Iron deficiency anemia in a 40-year-old man

36.

A 55-year-old man complains of abdominal pain after eating meals and has noted a 25-lb weight loss. The pain is “gnawing” and lasts 1–3 hours after eating. The weight loss, he says, is because he cannot eat very much without having the pain. It is really bothering him because he has to go to banquets all the time, and he just doesn’t enjoy food anymore because of the pain associated with eating.

PAST MEDICAL HISTORY: Hypertension for 20 years; on lisinopril
Obesity

SOCIAL HISTORY: Married
Smokes 3 cigars a day
Doesn’t drink anymore; stopped 6 months ago

Pertinent positives from review of systems: Known history of peripheral vascular disease—can walk only 3–4 blocks and then has severe leg pains. Otherwise negative.

PHYSICAL EXAMINATION: BP 130/70, P90, RR 18, Temp 99.0° F
HEENT: PERRLA, EOMI, sclera non-icteric
Teeth: Mostly capped
Mouth: No lesions noted
Neck: Supple; no bruits
Heart: RRR without murmurs, rubs, or gallops
Lungs: Clear to auscultation
Abdomen: Hyperactive bowel sounds; abdominal bruit heard
Extremities: Mild clubbing, 2+ peripheral edema
GU/Rectal: Mild heme-positive stool; no melena
Skin: Numerous chronic breakdown areas on his lower legs, particularly his shins
Neuro: Diminished sensation to touch and palpation of lower extremities in stocking distribution; reflexes equal and symmetrical; loss of hair over lower extremities

LABORATORY: Pending

Based on your findings so far, which of the following is the most appropriate next step?

- A. Colonoscopy
- B. Barium swallow with enteroclysis
- C. Ultrasound of abdomen
- D. Arteriogram
- E. Trial of omeprazole

37.

A 24-year-old man with history of chronic alcohol abuse presents with complaint of severe abdominal pain for the past 8 hours. He tried to relieve the pain by drinking beer. He eventually drank 12 beers without relief of the pain. He then started to vomit and noted that his abdominal pain was even worse. He has vomited about 5 times in the past 3 hours.

PAST MEDICAL HISTORY: Has never been hospitalized in the past
No medications

SOCIAL HISTORY: Works as an air traffic controller in Chicago
Drinks 6–12 beers daily, usually after work
Smokes 2 ppd of cigarettes
Lives with his girlfriend; she is a country western singer

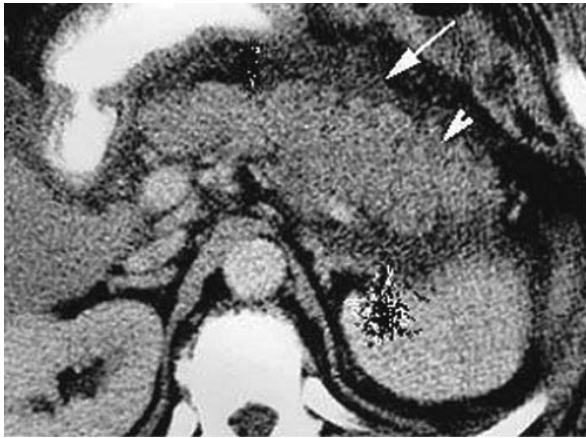
FAMILY HISTORY: Father 50, alcoholic
Mother 50, alcoholic

REVIEW OF SYSTEMS: No fever, no chills
Occasional headache in the mornings after drinking
Vomiting about once a week
Diarrhea on occasion

PHYSICAL EXAMINATION: BP 120/50, RR 22, P 110, Temp 99.9° F
HEENT: Poor dentition; severe halitosis; alcohol on breath
PERRLA, EOMI
Neck: No meningismus
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: +BS in all 4 quadrants; severe epigastric tenderness; won't let sheet stay on his belly; writhing in the bed; liver is 3 cm below the right costal margin; no spleen palpated
Rectal: Heme-negative
Extremities: No cyanosis or edema; no rash

LABORATORY: Amylase: 400 U/L
Lipase: 500 U/L
WBC: 15,000 x 10⁹/L with 80% polynuclear forms
Hemoglobin: 15.0 mg/dL
Platelets: 450,000
Calcium: 9.5 mg/dL
Albumin: 3.5 mg/dL
Creatinine: 0.5 mg/dL

Initial CT scan is shown in this figure:



You start appropriate therapy. In a few hours after initiating therapy, you note on physical examination that he now has a faint blue discoloration around the umbilicus.

This finding indicates that he may have developed which of the following?

- A. Tissue catabolism of hemoglobin
- B. A milder form of pancreatitis
- C. Fluid overload and you need to back down on fluid resuscitation
- D. Hemoperitoneum
- E. A pseudocyst

38.

A 22-year-old man with a negative past medical history presents with a chief complaint of “turning yellow.” He noticed that he was becoming yellow in the eyes yesterday. Today, he said he noted that his skin was also yellow. He has no nausea, vomiting, or other complaints.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Works at Taco Ringer as a cook
Lives with his girlfriend of 3 months
Became sexually active and had multiple sexual partners starting 1 year ago
Has been monogamous for 3 months and 1 day
Smokes marijuana on weekends
Drinks on weeknights

ROS: Essentially noncontributory

PHYSICAL EXAMINATION: Only pertinent findings:
Scleral icterus
Liver down about 5 cm and has a span of 17 cm; slightly tender
Spleen tip palpable
No spider angiomas

LABORATORY: Anti-HAV IgM Negative
 Anti-HAV IgG Positive
 Anti-HBc IgM Positive
 HBsAg negative
 Anti-HBc IgG negative

Which of the following is the best interpretation of the laboratory data?

- A. He has acute hepatitis A and past infection with hepatitis B.
 - B. He has chronic hepatitis A and acute hepatitis B.
 - C. He has chronic hepatitis A and chronic hepatitis B.
 - D. He has acute hepatitis B and past infection with A.
 - E. He has neither hepatitis A or hepatitis B; he is just antibody positive.
-

39.

A 17-year-old Caucasian male comes in as a referral from his pediatrician. Mark has been having difficulty in the last few months. Initially, he started having bizarre behaviors and was admitted for inpatient psychiatric therapy for a strange psychoneurosis: He kept thinking that if he didn't pass an important test the world would implode. His pediatrician has also been following him for chronic active hepatitis, with all serologies for hepatitis A, B, and C being negative. EBV studies are also negative, as well as CMV.

His physical exam is remarkable for this finding when you look in his eyes (see Appendix B color image Figure 3).



Additionally, on physical exam, he has hepatomegaly with a span of about 13 cm. Besides his psychosis (which appears now to be under control), he has a slight tremor to his left upper extremity.

Laboratory from his pediatrician:

His AST and ALT are 3–5 times normal and fluctuate. He has no sign of biliary obstruction. Additionally, he has a Coombs-negative hemolytic anemia.

Based on your findings, which of the following is the most likely diagnosis?

- A. Alcohol-induced cirrhosis
 - B. Unexplained hepatitis
 - C. Drug abuse
 - D. Wilson disease
 - E. Smith-Jones syndrome
-

40.

A 75-year-old patient presents to the hospital with his second cerebrovascular accident. Although he was functional after his first episode, after 3 days in the hospital he is still unable to speak, and attempts at swallowing liquids have led to coughing.

Which of the following is true?

- A. Percutaneous endoscopic gastrostomy (PEG) is appropriate intervention to allow hydration and nutrition.
 - B. Antibiotics are not required before a PEG since this is a sterile procedure.
 - C. Most patients with a PEG placement have severe reflux afterwards; therefore, one should consider a surgical jejunostomy instead.
 - D. Upper endoscopy should be done to evaluate the cause of dysphagia prior to any decision on long-term management.
-

41.

A 50-year-old male presents to the office with 10 years of typical heartburn symptoms. The symptoms typically occur after large meals or when he lies down at night. He has treated these with OTC dosing of famotidine, as well as frequent use of antacids. The symptoms are non-progressive but present 4 days out of each week. He recently read a newspaper article about the increased risk of esophageal cancer in patients with reflux and is upset and wants to get "checked out."

PAST MEDICAL HISTORY: Significant for hypertension treated with amlodipine. He is overweight by about 20 pounds.

ROS: He denies any dysphagia, hoarseness, or sore throat; he has never had any asthma or wheezing.

SOCIAL HISTORY: Significant for the patient being a nonsmoker who drinks 1–2 glasses of alcohol per day

PHYSICAL EXAMINATION: Unremarkable except for a mildly overweight, middle-aged man

You schedule an upper endoscopy that reveals a small hiatal hernia and several erosions in the distal esophagus consistent with Grade II reflux esophagitis. No Barrett esophagus changes are identified. The rest of the exam is normal.

Your recommendation to the patient for the most complete relief of his symptoms would be which of the following?

- A. Omeprazole 20 mg PO, before breakfast
- B. Omeprazole 20 mg PO q hs
- C. Ranitidine 150 mg bid, before breakfast and hs
- D. Ranitidine 150 mg bid and sucralfate 1 g PO qid, before meals and hs

42.

A 30-year-old male with a long history of asthma is admitted to the Intensive Care Unit with severe respiratory failure. He requires intubation, ventilatory support, bronchodilators, and IV corticosteroids. He has no other medical problems. After 3 days of therapy, the critical care physicians are able to extubate the patient. However, once there is initiation of oral feedings, the patient complains of severe pain while swallowing. Upper endoscopy is performed and reveals multiple small, shallow ulcers in the distal esophagus. Biopsies are pending at this time.

Which of the following is the least likely diagnosis?

- A. Herpes esophagitis
 - B. *Candida* esophagitis
 - C. Pill-induced esophagitis
 - D. Reflux esophagitis
 - E. Mechanical injury related to nasogastric tube
-

43.

A 25-year-old male presents to the office complaining of intermittent chest pain for the past year. This is a brief pain that lasts only 1–2 minutes in duration. It is unpredictable and not related to meals. It never wakes him. He says that it can radiate into the left chest, and he describes it as a sharp stabbing pain. There are no other factors in his past medical history. He does have a family history of premature coronary artery disease. In his social history, he admits to significant stress in his job as an IRS auditor. In review of systems, he denies any dysphagia or any typical reflux symptoms. Physical examination is normal.

Stress echo:	Normal
EGD:	Normal
Esophageal motility:	This demonstrated mostly normal peristalsis, but there were intermittent simultaneous contractions seen. Lower esophageal sphincter pressure was 40, but with complete relaxation. The amplitude in the esophageal body was 140 (normal 40–180).

Which of the following is true?

- A. Nitrates are effective therapy and well tolerated for this condition.
 - B. Empiric dilatation may help this pain.
 - C. 24-hour ambulatory pH probe may reveal abnormal reflux even without typical reflux symptoms.
 - D. Additional cardiac tests are needed (e.g., cardiac catheterization).
 - E. You should get a CT of the chest.
-

44.

Which of the following is the least common GI location for carcinoid tumor?

- A. Rectum
 - B. Ileum
 - C. Stomach
 - D. Appendix
 - E. Colon
-

45.

A 25-year-old patient with ulcerative colitis, who has been in clinical remission for the past year on mesalamine, develops diarrhea and abdominal pain. She denies rectal bleeding. This is similar to past flares of the colitis except for the lack of bleeding.

PAST MEDICAL HISTORY: Ulcerative colitis for 5 years; on mesalamine 2.4 g per day

ROS: Recent abscessed tooth that required 5 days of clindamycin; complains of occasional joint pain

PHYSICAL EXAMINATION: Temperature 99° F, no apparent distress; abdomen is soft and nontender, although slightly distended

LABORATORY TESTS: Hgb 12.0, WBC 15,500

You recommend which of the following?

- A. Check the stool for *Clostridium difficile* toxin before initiating therapy.
 - B. Admit to the hospital for IV corticosteroids and careful monitoring for possible toxic megacolon.
 - C. Check for fecal leukocytes and if positive, treat with metronidazole.
 - D. Perform an unprepped flexible sigmoidoscopy to assess for pseudomembranes.
 - E. Send a stool culture for *Clostridium difficile*.
-

46.

A 45-year-old woman presents with abdominal discomfort, distention, and diarrhea. These symptoms have been present about 6 months. She describes 5–6 bowel movements a day that are loose and foul smelling. Her past medical history is significant in that she has been told by one of her physicians in the past that she may have scleroderma. Review of systems is significant for a 5-lb. weight loss.

PHYSICAL EXAMINATION: The skin over the face and hands is tight, consistent with scleroderma. There is slight distention of the abdomen with tympany. There is no focal tenderness or any palpable masses.

Upper GI/small bowel series: This demonstrated decreased gastric motility and numerous diverticula present coming off the jejunum.

Which of the following pharmacologic interventions is most appropriate?

- A. Metoclopramide 10 mg PO qid
 - B. Amoxicillin-clavulanate 875 mg PO bid
 - C. Erythromycin 250 mg PO tid
 - D. Octreotide 200 mcg SubQ bid
 - E. Azithromycin 500 mg PO q day x 5 days
-

47.

Which of the following is true regarding the treatment of chronic hepatitis C?

- A. By attaching a polyethylene glycol moiety to interferon alpha, there is an increased response rate.
 - B. Interferon alpha given alone 6 million units 3 times a week is more efficacious than when used with ribavirin.
 - C. Infectious complications related to neutropenia frequently require cessation of antiviral therapy.
 - D. Patients rarely respond to therapy.
 - E. HCV genotype 1 is more responsive to therapy.
-

48.

A 45-year-old patient with known cirrhosis secondary to alcoholic liver disease presents with hematemesis and melena. He has no prior history of gastrointestinal bleeding. He was stabilized in the emergency department and transferred to the Intensive Care Unit. Upper endoscopy reveals bleeding esophageal varices that are successfully treated with band ligation. Over the next several days, he shows no signs of further bleeding. He is improving overall and tolerating oral feedings. On the third day, he develops a fever to 102° F and is noted to have a decrease in his mental status.

Physical exam reveals a jaundiced male. He has prominent ascites in the abdomen. The abdomen does not have any focal tenderness. There is enlargement of the spleen and the liver edge is 3 cm below the right costal margin.

LABORATORY: WBC 18,500; Hgb 9; Bili 4.0; AST 70; ALT 45

Which of the following is true?

- A. This is unlikely to be spontaneous bacterial peritonitis, since he has no abdominal pain or tenderness.
 - B. Paracentesis is the appropriate diagnostic test at this time.
 - C. Antibiotics have not been shown to be beneficial when given prophylactically to cirrhotics with upper GI hemorrhage.
 - D. If the paracentesis yields acidic fluid with a PMN count greater than 250, this confirms SBP and treatment should be initiated with gentamicin.
 - E. If the paracentesis yields acidic fluid with a PMN count greater than 100, this confirms SBP and treatment should be initiated with gentamicin.
-

49.

A 40-year-old man presents to the office with a chief complaint of fatigue. He has been very distressed and upset since his older brother recently required a liver transplantation for hemochromatosis. He has been told that this disease can be hereditary and that he needs to be “checked out.” He is an otherwise healthy man who has never had any significant medical problems. He has 1 drink of alcohol per night. He takes no other medications. On review of systems, he complains of occasional knee pain after tennis.

PHYSICAL EXAMINATION: The skin is normal pigmentation. The sclera is anicteric, and there is no sign of jaundice. There is no hepatomegaly or enlargement of the spleen. No ascites felt on exam.

Lab tests included a normal CBC, AST 28, ALT 24, alk phos 72.

You consider further testing.

Which of the following is true?

- A. A serum ferritin of greater than 500 is diagnostic for hereditary hemochromatosis.
 - B. Laboratory tests for iron are notoriously unreliable and therefore not needed. This patient should have a liver biopsy looking for hepatic iron concentration.
 - C. Transferrin saturation greater than 50% should prompt further evaluation, including HFE gene determination.
 - D. No further testing is necessary with normal laboratories and no hepatomegaly or abnormal skin color.
 - E. A serum ferritin of greater than 700 is diagnostic for hereditary hemochromatosis.
-

50.

Which of the following is the most common cause of acute fulminant liver failure in the United States?

- A. Wilson disease
 - B. Hepatitis B virus
 - C. Ingestion of amanita species mushrooms
 - D. Drug hepatotoxicity
 - E. Hepatitis C virus
-

51.

A 55-year-old male is referred for evaluation of microcytic anemia. He was recently in the hospital after presenting to the emergency department with a Hgb of 7 and an MCV of 65. He had noticed gradual weakness for 3 months prior to this but thought it was due to a viral syndrome. He denied any specific complaints and, in fact, denied any overt rectal bleeding or change in bowel movements. While he was in the hospital, he had an upper endoscopy, which was normal. Colonoscopy was also performed with good visualization of the colon to the cecum, again without any abnormalities. He received 2 units of packed RBCs and was discharged on oral iron.

PAST MEDICAL HISTORY: Otherwise unremarkable; he is on no medications; he does not take aspirin or NSAIDs

FAMILY HISTORY: Negative for any specific diseases of the GI tract

SOCIAL HISTORY: Negative

REVIEW OF SYSTEMS: Significant for fatigue and dyspnea on exertion; otherwise negative

PHYSICAL EXAMINATION: Healthy 55-year-old; although he was pale at the time of admission, his color has now returned after the blood transfusion

At this point, you recommend which of the following?

- A. Upper GI small bowel series
 - B. Trial of estrogen empirically for presumed AV malformation bleeding
 - C. CT scan of the abdomen and pelvis
 - D. Tagged RBC bleeding scan
 - E. Ultrasound of the liver
-

52.

A 70-year-old male patient has absolutely no complaints. He is in for his routine checkup. At this time, he is found to have a Hgb of 10.7 with an MCV of 72. He denies any weakness or fatigue.

PAST MEDICAL HISTORY: Significant for hypertension; his only medication is lisinopril

SOCIAL HISTORY: Noncontributory with no alcohol or tobacco history; he is active and walks every day

FAMILY HISTORY: Negative for gastrointestinal disease

REVIEW OF SYSTEMS: Denies any abdominal pain, reflux, or change in bowel movements; he has never had any overt bleeding

PHYSICAL EXAMINATION: Healthy 70-year-old patient

HEENT: Normal

Chest: Clear and has a normal cardiac exam

Abdomen: Soft and nontender without organomegaly; his stool is brown and heme-negative

You schedule a colonoscopy, which reveals moderate diverticulosis in the sigmoid colon. There is a single 5-mm AVM found in the cecum. There is also a 5-mm sessile rectal polyp, which was removed.

At this point, which of the following would you recommend?

- A. Endoscopic ablation of the AV malformation, because this was the likely cause of anemia.
 - B. Elective sigmoid resection, because diverticulosis was the most likely cause of bleeding.
 - C. Place patient on estrogen therapy to stop the bleeding from the AV malformation.
 - D. Start patient on iron and monitor the Hgb every 2 months.
 - E. Administer an H₂ blocker initially.
-

53.

A 45-year-old male presents to the emergency department with hematemesis that occurred 8 hours before presentation. Just prior to presentation, he noted a black tarry stool. He does not remember vomiting prior to the episode, but admits to heavy drinking and poor recollection of some events.

PAST MEDICAL HISTORY:	Significant for no medical problems
SOCIAL HISTORY:	Significant in that he says he drinks a 6-pack of beer every night and smokes 1 pack of cigarettes per day
REVIEW OF SYSTEMS:	Significant for his denial of abdominal pain, reflux symptoms, chest pain, dyspnea, or syncope
PHYSICAL EXAMINATION:	HR 120, BP 90/60; after 1 liter of IV fluid, the HR is 100 and BP is 120/80
HEENT:	Sclera anicteric
Chest:	Clear to auscultation
Cardiac:	Normal
Abdomen:	Soft and non-tender without hepatosplenomegaly; stool black and heme-positive
LABORATORY:	Significant for Hgb 11.6
Endoscopy:	Reveals a 2-cm linear tear in the distal esophagus without active bleeding or visible vessel. The rest of the stomach is normal. There is no blood present in the stomach, and the duodenum is clear as well.

Which of the following is true?

- A. Endoscopic treatment should be performed using a heater probe applied to the length of the tear.
- B. Mallory-Weiss tears rarely bleed sufficiently to require blood transfusions.
- C. This patient will likely not have recurrent bleeding after admission, though his Hct will likely fall with hydration.
- D. The linear erosion is probably due to reflux rather than Mallory-Weiss tear, since there is no report of prior retching.

54.

A 60-year-old female comes in the office with the complaint that 7 days ago she had a dark, tarry stool. For several days after that, she didn't have any bowel movements. Yesterday, she had her normal brown stool. She initially thought the dark stool was due to something that she might have eaten, but her daughter convinced her to come and get checked out. She denies any weakness or lightheadedness. At no time has she had any abdominal pain recently.

PAST MEDICAL HISTORY:	Unremarkable; she has no medical problems; she does take an aspirin everyday for general purposes
SOCIAL HISTORY:	Significant for no alcohol or tobacco use
FAMILY HISTORY:	Negative

REVIEW OF SYSTEMS: She denies any chest pain, syncope, reflux symptoms, or SOB

LABS: Hgb 12, MCV 88; other labs are normal

Urgent EGD done in an outpatient facility reveals a 1-cm duodenal ulcer with a clean base. CLO test is done from an antral biopsy, and the preliminary result is negative.

Which of the following should you recommend?

- A. Discharge home on lansoprazole 30 mg qd with caution to return to the emergency department in case of another black stool.
 - B. Endoscopic treatment with a heater probe to the entire base of the ulcer, and then admit to the ICU for careful observation overnight.
 - C. Admit to General Medicine ward, and obtain a surgery consult in case of rebleeding.
 - D. Admission to an observation unit with Hct every 4 hours and discharge the next day if stable.
-

55.

A 50-year-old woman of Irish descent is referred to your office after another internist noted microcytic anemia on a routine test. She has no specific complaints. She describes 2 soft and slightly loose bowel movements every day, but this has been her normal pattern for many years. It has not progressed in any way. She denies any abdominal pain, although admits to some nonspecific bloating, again present for many years.

PAST MEDICAL HISTORY: She is on thyroid replacement for hypothyroidism; she is status-post hysterectomy and is on replacement estrogen as well

FAMILY HISTORY: Negative for any gastrointestinal disease

SOCIAL HISTORY: Negative

REVIEW OF SYSTEMS: She denies fever, chills, weight loss, chest pain, or dyspnea

PHYSICAL EXAMINATION: Unremarkable except for slight paleness to the skin
HEENT: Sclera anicteric
Chest and Cardiac exam: Normal
Abdomen: Soft and nontender without organomegaly;
stool brown and heme-negative
LABS: Hgb 9.0, MCV 70, serum iron 8, TIBC 400
You order stools for occult blood and these are negative x 3.

Which of the following should you recommend?

- A. Flat plate x-ray of the abdomen and a trial of pancreatic enzymes if calcifications are found.
 - B. IgG antigliadin and antiendomysial antibodies; if positive, treat with steroids and gluten-free diet.
 - C. Colonoscopy and endoscopy. If the latter is grossly normal, obtain oriented biopsies of the duodenum.
 - D. Order upper GI small bowel series.
-

56.

A 40-year-old patient has had ulcerative colitis since age 20. In the past 5 years, he has been completely asymptomatic and in remission since the initiation of therapy with azathioprine. His bowel movements are normal, and he never notices rectal bleeding. He further denies any abdominal pain.

PAST MEDICAL HISTORY: Significant only for ulcerative colitis; his medications include sulfasalazine 2 g/day and azathioprine 100 mg/day

FAMILY HISTORY: Positive for 1 cousin with Crohn disease

REVIEW OF SYSTEMS: Denies any jaundice, itching, or abdominal pain

LABS: Alk phos 410, AST 50, ALT 68, bili 2.2, d. bili 1.8, Hgb 12, WBC 5,000
Ultrasound reveals a normal-sized liver and no enlargement of the bile ducts.

Which of the following studies should you recommend as the next best step?

- A. Liver biopsy
- B. ERCP
- C. Laparoscopic cholecystectomy
- D. Abdominal CT scan

57.

A 52-year-old female originally presented to the emergency department with severe acute abdominal pain. This pain was unlike any pain she had ever experienced in the past. It radiated to the back and was associated with nausea and vomiting. The pain started 8 hours earlier and had been constant since that time.

PAST MEDICAL HISTORY: Significant for hyperlipidemia; the only medicine is atorvastatin

FAMILY HISTORY: Positive for CAD

SOCIAL HISTORY: Denies any alcohol use; does not smoke cigarettes

REVIEW OF SYSTEMS: She denies any change in her bowel habits, chest pain, or SOB

PHYSICAL EXAMINATION: She is in moderate distress; HR 110, BP 110/60
Skin: Turgor is normal
HEENT: Unremarkable
Chest: Clear to auscultation
Cardiovascular: Normal, except for the tachycardia
Abdominal exam: Tender in the epigastrium to mild palpation; there is no rebound or guarding; there is no referred pain on exam; stool is heme-negative
Extremities: Normal

LABS: Amylase 1,242, lipase 865, bili 1.9, AST 86, ALT 92, alk phos 245, Hgb 15, WBC 13,000

An ultrasound was done on admission, which revealed a gallbladder with multiple filling defects consistent with stones. The pancreas is edematous. The common bile duct was identified and was of normal diameter.

On the 2nd day of admission, the amylase increased to 1450, and the bilirubin climbed to 3.5. However, at the time, the patient felt much better. She was receiving IV meperidine, but felt she didn't need this anymore.

It is now the 5th day and her amylase has been rechecked and found to be completely normal. Her abdomen is soft and nontender. She is not jaundiced and is now tolerating a liquid diet.

Which of the following studies would you recommend?

- A. ERCP now, since there is a high likelihood of stones present in the CBD.
 - B. Discharge from the hospital now and then elective cholecystectomy in 2 weeks.
 - C. Open cholecystectomy with common bile duct exploration now before discharge from the hospital.
 - D. Percutaneous transhepatic cholangiogram.
-

58.

A 70-year-old female complains of vague abdominal discomfort. She has never had any severe pain. This discomfort has been present for several months. It is located in the middle-to-upper abdomen.

PAST MEDICAL HISTORY: Unremarkable; she is healthy and does not take medications except for a multi-vitamin

SOCIAL HISTORY: She is a very healthy woman who enters 10k races on a regular basis

FAMILY HISTORY: Positive for brother with colon cancer

ROS: She denies any jaundice, weight loss, or change in bowel habits; she has not had any back pain or itching

LABS: CBC and LFTs are all within normal limits

You order an abdominal CT scan, which demonstrates a 7-cm cyst in the tail of the pancreas.

Which of the following should you recommend?

- A. Check CA19-9 level; if normal, reassure the patient and recommend no further workup.
 - B. CT-directed needle aspiration. If the fluid is negative for cytology, then you can reassure the patient.
 - C. Consult surgery for elective resection of the tail of the pancreas with removal of the cyst.
 - D. Start pancreatic enzymes, because this is likely a pseudocyst from occult chronic pancreatitis. If the cyst is persistent 3 months later, then recommend percutaneous drainage by the radiologist.
-

59.

Four people present to the emergency department—all within 30 minutes of each other—with similar symptoms. They all describe the sudden onset of nausea and severe vomiting. Shortly thereafter, all of them developed profuse diarrhea, and now all complain of severe weakness. All 4 people had been together that afternoon—they all attended a company picnic. There were a variety of different foods that were brought by different people, including deviled eggs, ham sandwiches, jambalaya, sashimi, barbecued chicken, and hamburgers on the grill, as well as raspberries and melon balls. None of the people involved remember eating any other items. All had been swimming in a creek, and 2 admit to possibly ingesting some of the creek water. The nausea started almost exactly 4 hours after the picnic.

On presentation to the emergency department, the person complaining of the most profound weakness has a blood pressure of 80/40 with a heart rate of 140 and decreased skin turgor. Temperature is 97° F. Abdomen is soft and nontender. IV fluids have been started.

Which of the following is true?

- A. This is probable *Salmonella* related to undercooking of poultry.
 - B. This is likely a *Staphylococcus aureus* food poisoning.
 - C. This is likely giardiasis from drinking the creek water, which is commonly infested with *Giardia*.
 - D. This is likely *E. coli* O157 related to the undercooked hamburger.
-

60.

A 55-year-old woman presents for a general health checkup. She reports occasional diarrhea and some occasional shortness of breath with exertion, but otherwise feels well. Her past medical history is significant for hypothyroidism and hypertension, both of which are well controlled. Her past surgical history is significant for hysterectomy and appendectomy with bowel resection for a “complicated” case of appendicitis when she was 16. She has no stomach pain or any other symptoms.

Her labs show a hematocrit of 30, an albumin of 5, CRP and ESR are normal, TSH is 2.1 (normal), MCV is 102.

Her anemia is most likely due to:

- A. Atrophic gastritis
 - B. Crohn disease
 - C. Human immunodeficiency virus infection
 - D. Small bowel resection
-

61.

You are seeing a healthy 55-year-old Caucasian man in clinic for the first time. He feels well, but has heartburn whenever he doesn't take his omeprazole. Otherwise, he has hypertension and obesity but no other medical problems. He had an EGD with biopsies showing Barrett esophagus without dysplasia 2 years ago.

According to published guidelines, when should he have another upper endoscopy?

- A. Now
 - B. 3–5 years from his last endoscopy
 - C. 5–7 years from his last endoscopy
 - D. No need for further endoscopies
-

62.

A 44-year-old man is referred to you because he was just diagnosed by a surgeon 4 months ago with ulcerative colitis. He was placed on mesalamine, and his diarrhea and rectal bleeding have stopped. His biopsies from flexible sigmoidoscopy 3 months ago showed acute and chronic changes consistent with a diagnosis of ulcerative colitis. His labs show a normal hemogram. Alkaline phosphatase is elevated at 350. His bilirubin and transaminases are normal. He is currently asymptomatic and says he's never felt better. Because of his abnormal alkaline phosphatase, you order an MRCP, which the patient reluctantly agrees to.

The results of the MRCP show a "chain of lakes" appearance of the biliary tree.

What should you do next?

- A. Continue mesalamine; return to clinic in 6 months.
 - B. Colonoscopy now and then annual colonoscopy.
 - C. Start ursodiol.
 - D. ERCP immediately.
-

63.

A 50-year-old recovered alcoholic female presents to clinic with diarrhea and weight loss. You order stool studies, which show elevated fecal fat but are otherwise normal. Because she also needed colon cancer screening you performed a colonoscopy with random biopsies for microscopic colitis. These were negative/normal. You order a 72-hour fecal fat collection on a high-fat diet, and it returns results of 40 grams of fat total in the 72-hour collection.

What is the next appropriate step?

- A. Place on pancreatic enzymes.
 - B. Ask for an ERCP from the GI doc.
 - C. Order a CT of the abdomen.
 - D. Order a carboxylate-deficient transferrin test to assess the patient's alcohol use.
-

64.

An 82-year-old white male with a history of CAD, COPD, and alcoholism presents with 3 months of progressive, intermittent dysphagia and associated weight loss. He also takes warfarin for history of recurrent DVT. You order an esophagram as part of his evaluation (see image).



What is the most likely diagnosis?

- A. Squamous cell carcinoma of the esophagus
- B. Adenocarcinoma of the esophagus
- C. Esophageal submucosal hematoma
- D. Bezoar

65.

A 40-year-old woman presents with acid reflux which is well-controlled on esomeprazole 20 mg once a day. She is otherwise quite well, but expressed multiple times that she doesn't like to take medications. Her reflux medicine is the only thing she takes daily. She has no other medical history. She does have a history of cholecystectomy at age 30.

Before seeing you, she had a normal esophageal manometry and barium esophagram. Her EGD prior to starting esomeprazole showed erosive esophagitis.

What would you recommend?

- A. Repeat EGD now.
- B. Referral for Nissen fundoplication.
- C. Taper off of esomeprazole and try H2RA drugs.
- D. Add metoclopramide.

66.

A 90-year-old patient presents to your clinic with dysphagia to solids, which occurs intermittently. He also has a history of severe coronary artery disease with exertional angina and takes warfarin daily for a history of pulmonary embolism. He also suffers from sleep apnea and dementia.

What test would you order first?

- A. EGD
 - B. Barium swallow
 - C. Chest CT
 - D. Modified barium swallow study and speech pathology consult
-

67.

A 45-year-old gentleman presents to the emergency department with fever (101.5° F), stupor, malaise, right upper quadrant pain, and vomiting. His presenting blood pressure is 80/64. On exam he smells of alcohol, has scleral icterus, and right upper quadrant tenderness. His hypotension responds to a fluid bolus and labs are checked. They reveal a white blood count of 18.5k/mL, total bilirubin of 3.2 mg/dL.

What diagnostic testing would you like to order at this point?

- A. Call GI for an ERCP.
 - B. Schedule MRCP.
 - C. Start pentoxifylline for suspected alcoholic hepatitis.
 - D. Right upper quadrant ultrasound.
-

68.

A 67-year-old male presents with diarrhea for the past 3–4 months. It has become more frequent over the past 3 weeks—almost 7–10 times a day. He sometimes feels flushed, but when he checks his temperature, he has no fever. He does not have bloody stools. His exam revealed a holosystolic murmur, which he did not know about previously. His labs, including his CBC/diff and CMP, are normal.

What is the next best diagnostic test to evaluate his symptoms?

- A. Admission for a TEE
 - B. TTE and EKG to evaluate for CHF due to valvular heart disease
 - C. 24-hour urinary 5HIAA and serum chromogranin
 - D. Bone marrow biopsy and FLIP1-PDGFR α
-

69.

A 74-year-old male presents to you for a routine check up. He has lost 20 lbs from his baseline weight of 160 lbs, which was not intentional. His physical exam is unremarkable except for a hard 3-cm lymph node in the left supraclavicular region. His labs are significant for a mild anemia with hemoglobin of 11 and an MCV of 78. He is in good physical shape and exercises regularly.

Which of the following is the most useful in the evaluation of this patient?

- A. FNA of the lymph node and GI colonoscopy and/or endoscopy.
 - B. Excisional biopsy of the lymph node for lymph node architecture.
 - C. Send iron studies and treat iron deficiency anemia; nutrition consult.
-

70.

A 35-year-old female presents with a 1-year history of sporadic bloating symptoms. She's very embarrassed about frequently passing gas and belching at work. She drinks 10 diet sodas per day.

Her past medical history is significant for hypertension, which is well controlled on lisinopril 10 mg per day, and her surgical history is significant for a cystoscopy for bladder pain, which was nondiagnostic except for interstitial cystitis.

Her family history is significant for colon cancer in her mother at age 44. Her father had hypertension his whole life and died in a gardening accident at age 48. Her maternal grandmother had uterine cancer, which was surgically cured. Her maternal uncle had "kidney cancer."

What would you recommend?

- A. Colonoscopy now, repeat every 1–2 years.
 - B. Reassurance only; she can cut down on diet soda and start dating.
 - C. Refer for genetic testing, colonoscopy, U/A, and gynecologic exam.
 - D. EGD and colonoscopy.
-

PULMONARY MEDICINE

71.

A 50-year-old man was placed on mechanical ventilation yesterday due to a pulmonary embolism that resulted in respiratory failure. It appears he now has developed ARDS. You have managed his ventilator settings adequately and have told the family that he will likely require prolonged mechanical ventilation before he starts to improve. He appears to be stable at 24 hours out.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Negative

FAMILY HISTORY: Negative

REVIEW OF SYSTEMS: Negative (this is a rather boring case for a change)

PHYSICAL EXAMINATION:

HEENT:	PERRLA, EOMI TMs clear Intubated
Neck:	No masses
Heart:	RRR with murmurs, rubs, or gallops
Lungs:	Coarse BS without other focal findings
Abdomen:	Bowel sounds present; no hepatosplenomegaly
Extremities:	No cyanosis, clubbing, or edema

Knowing that he will be on the ventilator for a prolonged period of time, which of the following would be an appropriate nutritional intervention?

- A. Start parenteral TPN feeds.
- B. Start peripheral TPN feeds.
- C. Continue NPO status another 24 hours.
- D. Continue NPO status until you are assured he is stable.
- E. Start enteral feeding.

72.

You are seeing a 46-year-old man who was raised in rural Mississippi. On a routine CXR (done by another physician), a 5-mm nodule was found in his left upper lobe. The nodule has some calcifications in it. He does not smoke. He has never had a CXR before.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY:

- Teaches 9th grade Art at the local high school
- Lives alone
- Quit smoking 20 years ago

FAMILY HISTORY:	Mother 72; MI 2 years ago; doing well now Father 66; MI 1 year ago; doing well Brother 42; healthy
REVIEW OF SYSTEMS:	No weight loss No night sweats No fever No chills No cough No rashes No travel history
PHYSICAL EXAMINATION:	BP 120/70, P 90, RR 13, T 98.6° F HEENT: PERRLA, EOMI TMs clear Throat clear Neck: Supple Heart: RRR without murmurs, rubs, or gallops Lungs: Clear to auscultation Abdomen: Bowel sounds present; no hepatosplenomegaly Extremities: No cyanosis, clubbing, or edema Skin: No masses or rashes
LABORATORY:	CXR: 5-mm calcified nodule seen in mid-left upper lung field

Which of the following should you do next to work up this nodule?

- A. No further workup is needed.
 - B. Repeat CXR in 1 month.
 - C. Place PPD.
 - D. V/Q scan.
 - E. CT of chest to evaluate the nodule.
-

73.

A 45-year-old man presents to your office with a 2-month history of exertional dyspnea and nonproductive cough. There is no history of wheezing or prior asthma. He smoked in his early 20s but now limits himself to an occasional cigar. There is no history of chest pain, and he has a copy of an ECG done for a recent insurance physical that was normal. He works in an office with no known occupational exposure, and he is on no prescription medications.

On exam, he is a well-developed male in no apparent distress. He has no adenopathy. The cardiovascular exam is normal. On examination of the chest, you note late inspiratory crackles at the bases. He has no clubbing, cyanosis, or edema.

LABORATORY STUDIES: Hematocrit 45%; Hemoglobin 15 g/dL
CXR-PA and lateral: Increased interstitial markings at the bases
ABG: pH 7.45, PCO₂ 36 mmHg, PO₂ 70 mmHg on room air

You send him for full PFT testing, and this is consistent with restrictive lung disease. Various serologic markers are sent for systemic disease and are negative.

Which of the following is the appropriate next step in this patient's workup?

- A. Bronchoalveolar lavage and/or transbronchial lung biopsy.
- B. CT angiography of the lung.
- C. Open-lung biopsy and resection of diseased lung.
- D. Follow serial pulmonary function tests at a PFT lab, which would include a determination of his total lung capacity (TLC) and diffusing capacity (DLCO).
- E. Ventilation-perfusion scan.

74.

Three dishwashers started working at 8:30 a.m. By 1:00 p.m., 11 workers were involved in washing the dishes since there was a huge banquet the previous night, leaving lots of dirty dishes. The dishwashing procedures consisted of:

1. Pre-rinsing the dirty dishes by hand in a water tank.
2. Washing the pre-rinsed dishes in the automatic dishwasher.
3. Draining the washed dishes and placing them in cupboards.

Starting around 2:00 p.m., workers began complaining of such symptoms as headaches and dizziness. By 2:30 p.m., all workers showed the same symptoms. Two seriously affected workers were taken to a local hospital by ambulance; the other 9 workers were also eventually taken to the hospital for treatment.

One of the workers arriving in the emergency department is a 54-year-old woman whose last memory was washing asparagus off a plate. The next thing she remembers was riding in the ambulance.

PAST MEDICAL HISTORY: Peptic ulcer disease, fibromyalgia

MEDICATIONS: Unknown anxiolytic, estrogen

FAMILY HISTORY: Unknown

SOCIAL HISTORY: Divorced; lives with her boyfriend in a trailer park; smokes 3 ppd; drinks a 6-pack of beer daily

ROS: Positives: Headache; dizziness; weakness; nausea; difficulty concentrating; dyspnea; visual changes

PHYSICAL EXAMINATION: BP 126/91, HR 86, RR 30, T 98.8° F

MS:	Oriented to name only; speech without dysarthria; 2/3 recall at 5 minutes
General:	Erythema to face and trunk
HEENT:	PERRLA, EOMI, Throat clear
Neck:	No masses
Heart:	RRR without murmurs
Lungs:	CTA
Abdomen:	+BS, soft, nontender
Neuro:	CN grossly intact; reflexes equal and symmetrical
Motor:	Full strength throughout with normal muscle tone and bulk
Sensory:	Unremarkable

LABORATORY: ABG: 7.41/30/370 with O₂ Sat 98% on 100% FiO₂;
carboxyhemoglobin level is 26%

Which of the following is the most likely diagnosis based on the epidemiology of multiple people being ill and this woman's ABG results?

- A. Allergic reaction to dishwasher detergent
 - B. Carbon monoxide poisoning
 - C. Influenza A outbreak
 - D. Meningococemia
 - E. Asthma
-

75.

A 45-year-old man presents with a history of stable asthma on the following regimen of medications for 20 years: Cromolyn sodium, theophylline, and inhaled steroids.

He is doing well; however, last weekend he developed a sore throat and a cough. He went to a local doctor and was prescribed an unknown antibiotic, which he has continued to take. You are concerned that he was put on an antibiotic for a viral infection. Meanwhile, the patient throws up on your shoe and says he has been really nauseated for 2 days and hasn't been able to keep anything down.

Physical exam findings are within normal limits except that his mucous membranes are a little dry. His vital signs are normal and he does not have any signs of dehydration at this point.

Which of the following antibiotics could be causing his troubles?

- A. Amoxicillin
 - B. Sulfamethoxazole
 - C. Cefixime
 - D. Ciprofloxacin
-

76.

A 38-year-old man presents with an acute asthma attack. He has been feeling bad for a few days. This morning he awakened and could not breathe. When you see him in the emergency department, he is anxious and cannot talk because of his discomfort. You realize that you have to act quickly and note in his chart that he has had to be ventilated 3 times in the past for severe asthma exacerbations.

PAST MEDICAL HISTORY: As above
Most recent hospitalization was 1 year ago at another hospital
Has been on an inhaled medium-dose steroid, an inhaled long-acting beta2-agonist, and zafirlukast

SOCIAL HISTORY: Works as a puppet maker
Lives with his friend Poppito

FAMILY HISTORY: Mother with severe asthma
Father with coronary artery disease

REVIEW OF SYSTEMS:	Deferred for the moment—he is about to CRASH!
PHYSICAL EXAMINATION:	BP 150/95, RR 40 with shallow breaths and marked accessory muscle use, P 120
HEENT:	Cyanotic around his lips
Heart:	RRR without murmurs, rubs, or gallops
Lungs:	Faint squeaks is all you hear
Abdomen:	Benign
LABORATORY:	ABG: pH 7.06 PCO ₂ 90 PaO ₂ 55 Oxygen saturation 84% On 100% FiO ₂

You realize that you are not going to be able to ventilate him effectively without putting him on mechanical ventilation.

Which of the following ventilator settings are appropriate for a severely ill asthmatic patient?

- A. High rate, small tidal volume, high flows
 - B. Low rate, high tidal volume, high flows
 - C. Low rate, high tidal volume, low flows
 - D. Low rate, small tidal volume, high flows
 - E. High rate, high tidal volume, low flows
-

77.

You are seeing a 70-year-old man with severe COPD for follow-up. He quit smoking about 5 years ago, but his health has continued to deteriorate. He is at the point now where he cannot ambulate in his home without getting severely short of breath. He wants to know if there is anything else that he can do to improve his health status. You explain to him that supplemental oxygen may be beneficial to him, but you will have to do some laboratory studies to demonstrate to Medicare that they should pay for this. He agrees to the testing.

PAST MEDICAL HISTORY:	History of coronary artery disease; status-post 4 vessel CABG 5 years ago History of gout History of MI in 1992 Multiple hospitalizations for COPD exacerbations—about once a year on average in the last 10 years Morbid obesity
SOCIAL HISTORY:	Lives with his new wife of 2 years, Bambi, a 28-year-old dancer Drinks 2 glasses of red wine every night Quit smoking 5 years ago; before that, he smoked 2 packs/day for 50+ years
FAMILY HISTORY:	No change from the last 20 H&Ps you've done; documented well for the chart

REVIEW OF SYSTEMS: Occasional headache
Occasional sore throat
Dyspnea on exertion at 5 feet
Stable exertional chest pain; usually relieved with one nitroglycerin or rest
Cough: productive cough every morning of every day; no change in character or frequency
No nausea or vomiting
Increased difficulty initiating his urine stream

PHYSICAL EXAMINATION: BP 126/67, HR 86, RR 28, Temp 97.9° F
MS: Oriented x 3
General: Obese man in no distress at rest; but when you saw him walk in from the waiting room he was markedly distressed.
HEENT: Left cataract
Throat clear; dentures
Neck: No masses, no bruits
Heart: RRR without murmurs, rubs, or gallops
Lungs: Chronic crackles throughout; no change from previous examinations; prolonged expiratory phase noted as usual
Abdomen: +BS, soft, nontender
Neuro: CN grossly intact; reflexes equal and symmetrical
Motor: Full strength throughout with normal muscle tone and bulk
Sensory: Unremarkable

LABORATORY: ABG: 7.5 PCO₂ = 50; P_a O₂ = 50; Oxygen saturation 85%

Based on your findings, which of the following should you recommend?

- A. Supplemental oxygen is not indicated based on his laboratory values.
- B. Supplemental oxygen is not indicated based on his physical examination.
- C. Supplemental oxygen should be worn 24 hours a day by this patient.
- D. Supplemental oxygen may be indicated, but you need more information.
- E. Supplemental oxygen worn intermittently would be better than continuous oxygen therapy because of the concern that his respiratory drive will be too suppressed on continuous oxygen therapy.

78.

A 35-year-old Caucasian male with chronic lung disease of unknown etiology at this point presents for follow-up care. He has had episodes of sinusitis, bronchiectasis, and pancreatic insufficiency for at least 30 years. He has had recurrent pneumonias over the last 10 years. Usually his pneumonias are associated with pseudomonal infections.

PAST MEDICAL HISTORY: As above

FAMILY HISTORY: Older brother with similar complaints
Mother healthy
Father healthy, of Scandinavian ancestry
Has 2 sons, both healthy

SOCIAL HISTORY:	Works as a used car salesman Doesn't smoke Doesn't drink
REVIEW OF SYSTEMS:	Frequent colds Frequent sinus infections Frequent bloody noses because of increased blowing of nose Chronic cough
PHYSICAL EXAMINATION:	BP 120/70, RR 18, Temp 98.5° F, P 90
HEENT:	Nasal polyps; PERRLA, EOMI Throat: normal tonsils
Neck:	Supple, no masses
Heart:	RRR without murmurs, rubs, or gallops
Lungs:	Coarse breath sounds; occasional expiratory wheeze anteriorly and posteriorly
Abdomen:	No HSM, nontender
Extremities:	Clubbing present, no cyanosis
GU:	Normal male genitalia; no masses

Based on the history and physical exam, which of the following does not support the diagnosis of cystic fibrosis (CF)?

- A. Nasal polyps
- B. Recurrent sinusitis
- C. Recurrent pneumonias
- D. Family history
- E. Clubbing

79.

Yesterday a 20-year-old male presented with adult respiratory distress syndrome due to shock, and he required mechanical ventilation and positive end-expiratory pressure (PEEP). His condition gradually improves.

Which of the following would not be a criterion for cessation of mechanical ventilation?

- A. Vital capacity greater than 15 mL/kg
 - B. Tidal volume 4 to 5 mL/kg
 - C. FiO₂ 35%
 - D. PEEP 10 cm H₂O
-

80.

A 70-year-old man with a history of working in a brickyard for 50 years presents for evaluation at his granddaughter's request. He has been retired for 10 years. He is still active and plays bingo at the local church every day. Members of his bingo group are around his age, and recently one of his contemporaries at the bingo hall was diagnosed with tuberculosis. Your patient has been healthy and has no complaints. He denies weight loss, cough, fevers, or night sweats.

PAST MEDICAL HISTORY: Prostatic hypertrophy diagnosed 5 years ago; doing well currently
HTN for 40 years

MEDICATIONS: Propranolol 20 mg q day
ECASA q day

SOCIAL HISTORY: Widowed for 20 years
Lives alone; still drives without difficulty
Volunteers at local nursing home on occasion
Never smoked; doesn't drink alcohol

FAMILY HISTORY: Mother died at age 80 of "old age"
Father died at age 75 of stroke
Brother alive, 68, healthy except HTN
Sister died at age 50 of stroke

REVIEW OF SYSTEMS: No sore throat
No vision changes
No chest pains
No headaches
Minor arthritis-type pain in knees in the early morning; better with movement
GU symptoms much improved; no difficulty initiating urine stream

PHYSICAL EXAMINATION: BP 130/69, P 66, RR 15, Temp 98.8° F
Ht 6' 1", 190 lbs
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple, no masses
Heart: RRR without murmurs, rubs, or gallops
Lungs: Coarse breath sounds but clear
Abdomen: Bowel sounds present in all 4 quadrants, no
hepatosplenomegaly, nontender
Extremities: No cyanosis, clubbing, or edema
GU: Normal male genitalia, no masses

LABORATORY: CXR: Small nodules located in upper lobes; calcified hilar lymph
nodes with "hilar eggshell calcification"
PPD: 20 mm at 72 hours
3 induced sputum samples for AFB: All negative smears and cultures

Based on these findings, which of the following is the most appropriate next step?

- A. Ignore +PPD in this 70-year-old man. Sputum tests are negative; therefore, it is unlikely he needs prophylaxis.
- B. Initiate workup for asbestos-related disease process.
- C. Start treatment for silicosis.
- D. Start INH prophylaxis.
- E. Initiate 4-drug therapy for tuberculosis.

81.

A 68-year-old man with a history of smoking for 50 years presents to the emergency department with acute onset of shortness of breath and right-sided chest pain, which is sharp and worse with inspiration. His wife says he has had a chronic daily cough for 30 years, but today it was worse—and then he developed this acute shortness of breath.

PAST MEDICAL HISTORY: Negative for hospitalizations
Hypertension for 30 years, on various agents in the past
Diabetes insipidus diagnosed 5 years ago

SOCIAL HISTORY: Former police officer, retired 6 years
Lives with wife of 50 years
Also lives with his 45-year-old unemployed son, which causes a lot of tension in the household according to the patient's wife

You diagnose a pneumothorax in the emergency department. His CXR also shows a “honeycomb appearance” with interstitial changes and small cystic spaces in the upper lung fields.

Putting together the pneumothorax with his CXR results, diabetes insipidus, and smoking history, which of the following are you most likely to find at lung biopsy?

- A. Plasma cells
- B. Acid-fast bacilli
- C. Chylous material
- D. Langerhans cells
- E. Fungal elements

82.

A 50-year-old African-American woman with a history of hypertension and obesity presents with a 4-month history of worsening shortness of breath. She had been able to walk up a flight of stairs without any difficulty about 3 months ago. Now she complains of shortness of breath while walking around her home. Also, at night she has a new onset of orthopnea. She denies other symptoms at this point.

PAST MEDICAL HISTORY: Hypertension for 10 years, treated with HCTZ 25 mg daily
Delivered 5 healthy children in her 20s; no problems during pregnancies

SOCIAL HISTORY: Works in a daycare with 30 preschool children
Says her job is very stressful but less stressful than her previous job, which was as a housemother for a fraternity house.
Never smoked

Never drank alcohol
No pets
Widowed; lives alone

FAMILY HISTORY:

Father, 80; recent MI 1 year ago
Mother, 79; recent admission to nursing home for Alzheimer's
Sister, 55; healthy but obese
Brother, 53; hypertension, on medication
Sister, 48; with SLE

REVIEW OF SYSTEMS:

No headaches
No chest pain
No cough
No fever
No sweats
No rashes
No joint complaints

PHYSICAL EXAMINATION:

BP 120/85, P 90, RR 16, Temp 98.8° F
Ht 5' 2", Wt 260 lbs
HEENT: PERRLA, EOMI, discs sharp
Throat clear
Neck: Supple, no masses
Heart: RRR without murmurs, rubs, or gallops; loud pulmonic second sound
Lungs: Clear to auscultation
Extremities: Bilateral 2+ pitting edema; no cyanosis or clubbing noted
Skin: No rashes
Rectal: Heme-negative

LABORATORY:

Pulse oximetry on room air was 93% at rest; with walking dropped to 87%

CXR (see Appendix B color image Figure 4):

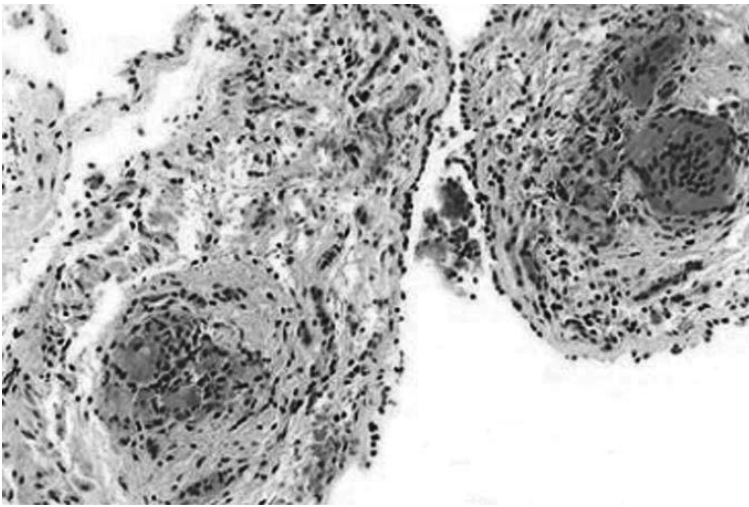


Echocardiogram: Ejection fraction of 80% and pulmonary hypertension with a PA systolic pressure of 61 mmHg. Right ventricular size and function were normal.

Pulmonary function tests: FEV₁ of 0.9 L (43% predicted) and an FVC of 1.6 L (59% predicted). High-resolution CT scan showed diffuse pulmonary nodules and hilar enlargement.

Three sputum samples for acid-fast bacilli were negative. She underwent bronchoscopy with transbronchial biopsy for evaluation of her pulmonary nodules. The bronchoscope showed hyperemia with nodular irregularities and distal concentric narrowing in the main, segmental, and proximal subsegmental bronchi.

The transbronchial biopsy is shown in the figure below. Special stains for fungi and acid-fast bacilli were negative. (See Appendix B color image Figure 5.)



Which of the following is the most likely diagnosis?

- A. Pulmonary sarcoidosis
- B. Tuberculosis
- C. Bacterial pneumonia
- D. Asbestosis
- E. Granulomatosis with polyangiitis (Wegener's)

83.

A 59-year-old man is seen in follow-up. He was initially evaluated for cavitating pulmonary nodules. He has a history of severe, deforming rheumatoid arthritis for 20 years that has required surgical interventions. In the past he has been on azathioprine, sulfasalazine, hydroxychloroquine, and methotrexate. None has been effective recently. He has been taking prednisone (varies from 5 mg to 20 mg a day) for many years. Four months ago, etanercept was begun, and his arthritic pain resolved almost completely. However, over the past 7–8 months he has developed a progressively worsening cough. It has been productive on occasion, but he denies any blood or blood-tinged sputum. Over the last 2 months, he has had increasing shortness of breath with exertion, to the point that he now cannot walk a block without being short of breath.

PAST MEDICAL HISTORY:	Diabetes mellitus, adult onset at age 40; probably associated with steroids Positive PPD 30 years ago and he took INH for 1 year			
SOCIAL HISTORY:	Worked as a locksmith for 20 years before having to retire for disability Stopped smoking cigarettes 30 years ago; previously smoked 1 pack/day for 10 years Doesn't drink alcohol			
FAMILY HISTORY:	Doesn't know; he was adopted			
REVIEW OF SYSTEMS:	No fever No chills No sweats No chest pain No weight loss No change in vision No appetite changes			
PHYSICAL EXAMINATION:	BP 130/82, P 69, RR 17, T 99° F, appears comfortable at rest			
HEENT:	PERRLA, EOMI, developing cataract in left eye TMs clear Throat clear			
Neck:	Supple, no masses			
Heart:	RRR with murmurs, rubs, or gallops			
Lungs:	Diffuse crackles at left base; no wheezes			
Abdomen:	Bowel sounds present; no hepatosplenomegaly; no masses			
Extremities:	Chronic, symmetric, deforming polyarthritis with moderate synovitis of metacarpophalangeal joints Joints were cool and without effusions Skin was without evidence of vasculitis or nodules			
LABORATORY:	Sputum: Negative for acid-fast bacilli x 3			
	Liver functions: AST 30 U/L; ALT 28 U/L; total bilirubin 0.2 mg/dL; alkaline phosphatase 200 U/L; GGT 20 U/L; albumin 3.5 mg/dL			
	Renal function: BUN 10 mg/dL; creatinine 0.5 mg/dL			
	Urinalysis: Normal for age			
	Pulmonary function testing:			
		Predicted	Actual	% Predicted
	FVC (L)	3.8	1.9	50
	FEV ₁ (L)	2.6	1.5	58
	FEV ₁ /FVC (%)	70	80	114
	DLCO mL/min/mmHg	26.02	8.63	33

Which of the following do the pulmonary function findings suggest?

- A. Severe obstructive lung disease, with no restrictive defect and marked decrease in diffusing capacity
- B. Restrictive ventilatory defect only
- C. Restrictive ventilatory defect and normal diffusing capacity
- D. Restrictive ventilatory defect and marked decrease in diffusing capacity
- E. Severe obstructive disease with mild restrictive defect and normal diffusing capacity

84.

A 51-year-old man returns for follow-up. He was seen initially for cavitating pulmonary nodules. He has a history of severe, deforming rheumatoid arthritis for 20 years that has required surgical interventions. In the past, he has been on azathioprine, sulfasalazine, hydroxychloroquine, and methotrexate. None has been effective recently. He has been taking prednisone (varies from 5 mg to 20 mg a day) for many years. Four months ago, etanercept was begun and his arthritic pain resolved almost completely. However, over the past 7–8 months, he has developed a progressively worsening cough. It has been productive on occasion, but he denies any blood or blood-tinged sputum. Over the last 2 months, he has had increasing shortness of breath with exertion to the point that he now cannot walk a block without being short of breath.

PAST MEDICAL HISTORY: Diabetes mellitus, adult in onset at age 40; probably associated with steroids
Positive PPD 30 years ago and he took INH for 1 year

SOCIAL HISTORY: Worked as a locksmith for 20 years before having to retire for disability
Stopped smoking cigarettes 30 years ago; previously smoked 1 pack/day for 10 years
Doesn't drink alcohol

FAMILY HISTORY: Doesn't know; he was adopted

REVIEW OF SYSTEMS: No Fever
No chills
No sweats
No chest pain
No weight loss
No change in vision
No appetite changes

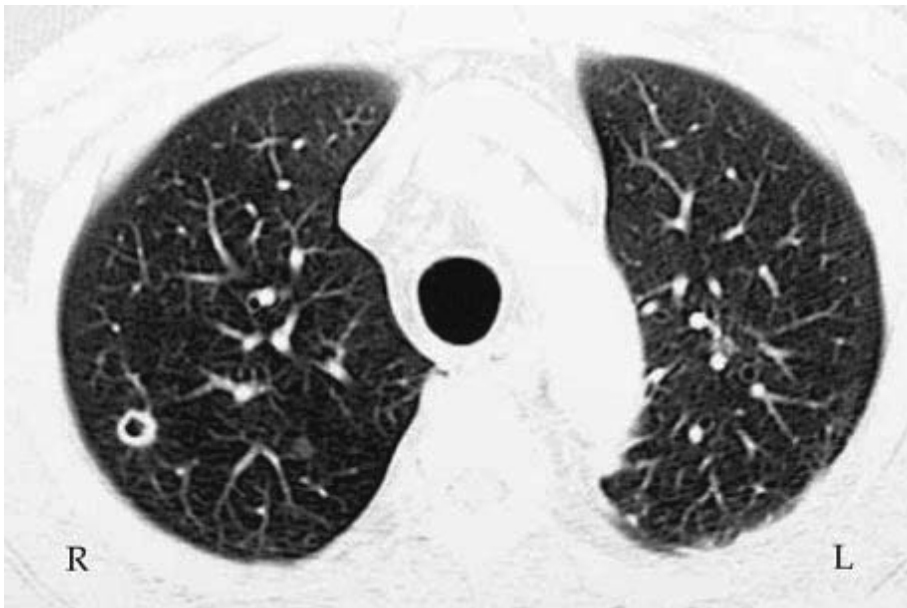
PHYSICAL EXAMINATION: BP 130/82, P 69, RR 17, T 99° F, comfortable appearing at rest
HEENT: PERRLA, EOMI, developing cataract in left eye
 TMs clear
 Throat clear
Neck: Supple, no masses
Heart: RRR with murmurs, rubs, or gallops
Lungs: Diffuse crackles at left base; no wheezes
Abdomen: Bowel sounds present; no hepatosplenomegaly; no masses
Extremities: Chronic, symmetric, deforming polyarthritis with moderate synovitis of metacarpophalangeal joints
 Joints were cool and without effusions
 Skin was without evidence of vasculitis or nodules

LABORATORY:

Sputum: Negative for acid-fast bacilli x 3
 Liver functions: AST 30 U/L; ALT 28 U/L; total bilirubin 0.2 mg/dL;
 alkaline phosphatase 200 U/L; GGT 20U/L; albumin 3.5 mg/dL
 Renal function: BUN 10 mg/dL; creatinine 0.5 mg/dL
 Urinalysis: Normal for age
 Pulmonary function testing:

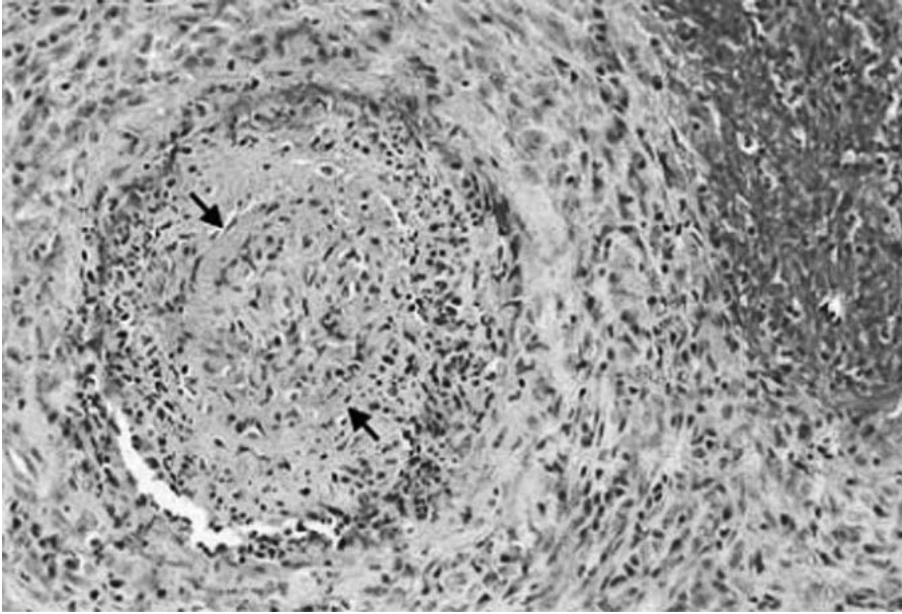
	Predicted	Actual	% Predicted
FVC (L)	3.8	1.9	50
FEV ₁ (L)	2.6	1.5	58
FEV ₁ /FVC (%)	70	80	114
DLCO mL/min/mmHg	26.02	8.63	33

A chest CT was performed. Twelve discrete nodules, up to 2 cm in diameter were identified; margins were smooth. Eight of them had central necrosis or cavitation (one shown in the figure below in the right upper lobe). See Appendix B color image Figure 6.



On other images, irregular posterior pleural thickening with some pleural enhancement was present. Scattered bronchiectasis was noted, especially in the posterior basal segment of the left lower lobe.

Biopsies were taken and showed progressive inflammation and necrosis in and around vessels. Arteries are seen adjacent to large nodules and are obliterated by necrosis surrounded by a granulomatous response. An obliterated vessel seen in the next figure is surrounded by granulation tissue; note the necrotic rim with multinucleated giant cell (see arrows). (See Appendix B color image Figure 7.)



Which of the following is the most likely diagnosis at this point?

- A. Tuberculosis
- B. Adenocarcinoma
- C. Bacterial pneumonia
- D. Cavitary rheumatoid nodules
- E. Granulomatosis with polyangiitis (Wegener's)

85.

A 35-year-old woman who had a stillbirth at 25-weeks gestation approximately 2 weeks previously presents with increasing dyspnea for 6 days, which has progressed to the point that she cannot perform daily activities without resting. Walking to the kitchen from her den causes severe dyspnea. She has no history of orthopnea or paroxysmal nocturnal dyspnea, chest pain, cough, or hemoptysis. She has no history of swelling or pain over her calves, and she has not had a history of bleeding disorder or thromboembolism. She has had 3 full-term normal vaginal deliveries 18 years, 6 years, and 3 years previously.

PAST MEDICAL HISTORY: As above; otherwise negative

SOCIAL HISTORY: Vice-President of Marketing for major computer company
Lives with husband and 3 children
Has never smoked
Drank glass of wine/week before was pregnant; none during pregnancy

REVIEW OF SYSTEMS: No fever
No chills
No productive cough
10-lb. weight loss after delivery

PHYSICAL EXAMINATION:	BP 130/90 mmHg, Pulse 125/min, RR 24/min, Temp 99.1° F
HEENT:	PERRLA, EOMI TMs clear Throat clear
Neck:	Supple; no masses Right jugular venous pressure was not raised Wave pattern showed prominent Y collapse
Heart:	Point of maximal impulse: 5 th intercostal space in the midclavicular line with a parasternal heave S ₁ was loud; S ₂ with normal splitting with a loud pulmonary component S ₃ was present Holosystolic murmur over left lower sternal border; increasing with inspiration
Lungs:	Scattered rhonchi
Abdomen:	Bowel sounds present; no masses; no hepatosplenomegaly, nontender
Extremities:	No cyanosis, clubbing, or edema
LABORATORY:	ECG: Right axis deviation, an S-wave in Lead I, and a Q-wave and inverted T-wave in lead III (S ₁ , Q3, T3). T-wave inversion in leads V2 and V3, and S wave persistence in leads V5 and V6.
	CXR: Normal
	CBC: WBC 7100/mm ³ ; hemoglobin 11.5 gm/dL; platelets 375,000
	ESR: 15 mm in 1 hour
	Glucose: 90 mg/dL
	BUN: 30 mg/dL
	Creatinine: 0.8 mg/dL

Echocardiogram: Dilatation of the right ventricle and right atrium. Moderate valvular insufficiency noted.

Based on your findings, which of the following is the most likely diagnosis?

- A. Bacterial pneumonia
 - B. Sepsis
 - C. Pulmonary embolism
 - D. Myocardial infarction
 - E. Bacterial endocarditis
-

86.

A 75-year-old Caucasian male with recent fracture of his right femur 3 hours ago presents by ambulance and is seen by an orthopedist, who places him in a cast and admits him for observation. Three hours later, you are called by the doctor because his patient is now short of breath and confused. He thinks the patient might have pneumonia because he is breathing fast. He is consulting you for antibiotic choices. You tell him you will take over the care for the respiratory disorder.

On evaluation, you find a disheveled elderly man lying in the bed in traction. He is having some difficulty breathing. He has supplemental oxygen with a 40% FiO₂ facemask that is keeping his pulse oximetry at 95%. He is unable to answer any questions due to his dyspnea, and he is also quite confused. Eventually, he says the year is 1960 and that you are his 5th grade school teacher.

PHYSICAL EXAMINATION: BP 130/70, P 99, Temp 99° F, RR 24
 HEENT: PERRLA, EOMI; conjunctival petechiae
 TMs clear
 Throat clear
 Neck: Supple, no masses; petechiae on neck
 Heart: RRR without murmurs, rubs, or gallops
 Lungs: Coarse breath sounds; few basilar scattered crackles
 Abdomen: Bowel sounds present; no hepatosplenomegaly
 Extremities: No cyanosis, clubbing, some edema on the fractured leg at the ankle; exam of fractured extremity limited but neuro-vasculature looks to be grossly intact

LABORATORY: Pending

Based on the history and physical findings, which of the following is the most likely diagnosis?

- A. Aspiration pneumonia
- B. Fat embolism
- C. Cerebrovascular accident
- D. Drug toxicity
- E. Hospital psychosis

87.

A 50-year-old man with a history of pneumonia diagnosed 2 days ago presents for follow-up. He was seen as an outpatient and sent home on oral levofloxacin. He says he took 1 pill and it made his stomach hurt, so he stopped the medication. He said he meant to call and let you know, but he was too busy and thought he would get better without the medicine. Now he complains of right-sided chest pain that is pleuritic in character. He says it really hurts to take a deep breath.

PAST MEDICAL HISTORY: Essentially negative; few office visits for sildenafil prescriptions

SOCIAL HISTORY: Works as an attorney; prosecutes medical malpractice cases
 Lives alone

FAMILY HISTORY: Mother alive and healthy
 Father died at age 70 of myocardial infarction
 Brother 49, healthy, mechanic

REVIEW OF SYSTEMS:	Fever has been persistent and unremitting since early this morning Chills prominent Sputum production has increased markedly since yesterday Chest pain as described above Minor sore throat Generalized body aches and pains No arthritis No vision changes No rash
PHYSICAL EXAMINATION:	BP 120/70, P 90, RR 20 (splinting), Temp 103.5° F
HEENT:	PERRLA, EOMI TMs clear Throat clear
Neck:	Supple; no masses
Heart:	RRR without murmurs, rubs, or gallops
Lungs:	Upper lung fields clear Left lower lung has scattered crackles. Right lower lung has the following localized findings: absent breath sounds, dullness to percussion; vocal fremitus is absent.
Abdomen:	Bowel sounds are present; no hepatosplenomegaly
Extremities:	No cyanosis, clubbing, or edema
Skin:	No rashes noted now
LABORATORY:	WBC: 15,000 cells/mm ³ with 80% polys and 10% bands Hemoglobin/Hematocrit: 15.5 mg/dL; 52% Platelets: 350,000
	CXR: Marked consolidation of the right LL with pleural effusion noted bilaterally; right much greater than left
	Pleural fluid: WBC 70,000 with 90% polys pH 7.02 Gram stain: Few lancet-shaped gram-positive diplococci

Based on your findings, which of the following is the most appropriate next step?

- A. Admit to the hospital, start intravenous ceftriaxone plus azithromycin, and observe on therapy 24 hours before placing a chest tube.
 - B. Admit to the hospital, start intravenous ceftriaxone plus azithromycin; get pulmonary consult to decide if he needs a chest tube.
 - C. Give IM shot of ceftriaxone and oral azithromycin; observe in waiting room and discharge home if doing better in 4 hours.
 - D. Admit to the hospital, place a chest tube, and start intravenous vancomycin and gentamicin (for synergy).
 - E. Admit to the hospital, place a chest tube, and start intravenous ceftriaxone and azithromycin.
-

88.

A 45-year-old woman was diagnosed with had influenza A last week presents today with a much worse cough and return of her fever. She was feeling better near the end of the week but now, in the last 24 hours, has become acutely ill again. She says that she has pain in her left lower chest when she takes a deep breath. Before this influenza diagnosis, she has been healthy.

PAST MEDICAL HISTORY: Negative
 Took amantadine for 5 days; finished 3 days ago

SOCIAL HISTORY: Works as a bartender in local pub
 Doesn't drink
 Doesn't smoke but exposed to second-hand all night long, 5 days a week

FAMILY HISTORY: Non-contributory

REVIEW OF SYSTEMS: Fevers to 103° F
 Chills
 Sore throat now resolved
 Body achiness is severe again

PHYSICAL EXAMINATION: BP 110/70, P 80, RR 24, Temp 102° F
 Ill-appearing woman in moderate distress

HEENT: PERRLA, EOMI
 TMs clear
 Throat slightly hyperemic

Neck: Supple, no masses

Heart: RRR without murmurs, rubs, or gallops

Lungs: Diffuse crackles fairly localized to the left base

Abdomen: Bowel sounds present; no hepatosplenomegaly

Extremities: No cyanosis, clubbing, or edema

LABORATORY: Pending

Besides *Streptococcus pneumoniae*, which of the following organisms should you also consider in this patient?

- A. *Staphylococcus aureus*
 - B. *Haemophilus influenzae*
 - C. *Streptococcus pyogenes*
 - D. *Staphylococcus epidermidis*
 - E. *Mycoplasma pneumoniae*
-

89.

A 60-year-old woman who has been on mechanical ventilation for 1 week due to ARDS from a pneumococcal pneumonia is slowly being weaned. Clinically, she is doing well and you are pleased with her progress.

MEDICATIONS: Day 8 of ceftriaxone

PHYSICAL EXAMINATION: HEENT: Pupils responsive and equal
Mild thrush of her oral mucosa
Neck: Supple, no masses
Heart: RRR without murmurs, rubs, or gallops
Lungs: Still with basilar crackles right greater than left
Abdomen: Positive bowel sounds, tolerating tube feeds well; no masses
Extremities: No cyanosis, clubbing, or edema

LABORATORY: CBC shows a mild increase in WBC to 11,000 from 9,500 yesterday with 80% lymphs
Tracheal aspirate culture from 2 days ago returns today and shows *Pseudomonas aeruginosa* sensitive only to amikacin, piperacillin/tazobactam, and ceftazidime
AST 25
ALT 26
Bilirubin 0.2 mg/dL
Creatinine 0.5 mg/dL
BUN 10 mg/dL
CXR: Slow improvement from admission; no new infiltrates

Based on clinical evaluation and laboratory results, which of the following is the most appropriate next step?

- A. Switch antibiotic coverage to piperacillin/tazobactam alone.
- B. Add amikacin to ceftriaxone.
- C. Switch antibiotics to piperacillin/tazobactam + amikacin.
- D. Perform bronchoscopy and then start piperacillin/tazobactam + amikacin.
- E. Continue current therapy.

90.

A 42-year-old hunter living in Arkansas presents with a 2-day history of fever and productive cough. He says that he has been so ill that he can't eat or sleep because of shaking chills. He says he has been unable to urinate for the past 12 hours because he hasn't taken in any fluids. He has had vomiting also during the past 12 hours.

PAST MEDICAL HISTORY: Hypertension for 3 years

SOCIAL HISTORY: Smokes 2 packs/day of unfiltered cigarettes
Drinks 2 martinis nightly
Eats squirrel, duck, rabbit, deer, opossum, frogs, sushi
No travel history except to the northern part of the state last week

FAMILY HISTORY:	Mother aged 60 and healthy Father aged 61 and healthy Brother 41 and healthy
REVIEW OF SYSTEMS:	Fever for 2 days Chills, shaking in nature Sweats—soaked the bed last night Pleuritic chest pain on occasion No joint complaints No rashes
PHYSICAL EXAMINATION:	BP 150/95, RR 24, P 120, Temperature 103.4° F HEENT: PERRLA, EOMI Throat: mild erythema; no exudates Heart: RRR without murmurs, rubs, or gallops Lungs: Scattered crackles but consolidated over right middle lobe Abdomen: Bowel sounds present; liver edge slightly palpable below right costal margin; no spleen palpated Extremities: Negative for cyanosis, clubbing, or edema
LABORATORY:	WBC: 18,000 with 90% polys and 10% bands Hemoglobin: 17.0 mg/dL Platelets: 245,000 Electrolytes: Sodium 145 mg/dL; chloride 110 mg/dL, K 4.0 mg/dL; CO ₂ 18 mg/dL Creatinine: 1.4 mg/dL BUN: 30 mg/dL Blood cultures: Taken Sputum Gram stain: Normal flora CXR: Right middle lobe pneumonia

He does not respond to ceftriaxone in the first 24 hours, and his blood culture is now growing a gram-negative rod.

Which of the following organisms should you cover for at this point?

- A. *Yersinia pestis*
- B. *E. coli*
- C. *Salmonella*
- D. *Francisella tularensis*
- E. *Haemophilus influenzae*

91.

An 18-year-old college freshman developed a sore throat approximately 8 days ago that was cultured and did not grow *Streptococcus pyogenes*. However, her throat culture did grow *Staphylococcus aureus*. She presents today with complaint of fever and cough that began last night. She also describes hoarseness since she has had her sore throat symptoms. The sore throat symptoms resolved after 3 days without specific antimicrobial therapy.

PAST MEDICAL HISTORY: Attention Deficit Disorder diagnosed at age 8; on no medication since 4 years ago

SOCIAL HISTORY:	Recently moved here from Shreveport, LA, for college Doesn't smoke or drink alcohol Not sexually active Has a pet parrot back in Shreveport
FAMILY HISTORY:	Mother 40, healthy Father 42, in prison for securities fraud Sister 15, pregnant
REVIEW OF SYSTEMS:	Negative for other symptoms; no rash, no joint manifestations
PHYSICAL EXAMINATION:	BP 110/70, P 88, Temp 100° F, RR 18 Ill-appearing woman in no acute distress HEENT: PERRLA, EOMI, wears contact lenses TMs clear Throat: slightly erythematous; no exudates Neck: Supple, no meningismus Heart: RRR without murmurs, rubs, or gallops Lungs: Coarse breath sounds with crackles heard on the left base Abdomen: Bowel sounds present in all 4 quadrants, nontender; no hepatosplenomegaly Extremities: No cyanosis, clubbing, or edema
LABORATORY:	CXR: Left lower lobe infiltrate

Besides *Streptococcus pneumoniae*, which of the following is a likely etiology for her pneumonia?

- A. *Chlamydophila pneumoniae*
- B. *Chlamydia trachomatis*
- C. *Chlamydophila psittaci*
- D. *Staphylococcus aureus*
- E. *Haemophilus influenzae*, type B

92.

Your receptionist asks you to see her 17-year-old daughter. She (the daughter) has had a fever and cough for 2 days and is not better with over-the-counter medications. Her cough has become productive in the past day, and last night she coughed most of the night. Her fevers have ranged up to 101.5° F. She feels bad and complains of generalized body aches.

PAST MEDICAL HISTORY:	Negative
SOCIAL HISTORY:	Lives with her mother and 2 brothers, ages 12 and 10 Attends high school and makes As and Bs; except a D in Art Denies smoking or drinking or listening to rock n' roll
FAMILY HISTORY:	Mother 40 Father 42, healthy 2 brothers, healthy

REVIEW OF SYSTEMS: Essentially negative

PHYSICAL EXAMINATION: BP: 100/60, P 90, Temp 100° F, RR 14
 HEENT: PERRLA, EOMI, wears glasses
 TMs clear
 Throat clear; non-erythematous
 Neck: Supple no masses
 Heart: RRR with ejection click; no murmurs, rubs, or gallops
 Lungs: Coarse crackles heard at the left base
 Abdomen: Bowel sounds present; no hepatosplenomegaly
 Extremities: No cyanosis, clubbing, or edema
 Skin: No rashes

LABORATORY: CXR: Left lower lobe infiltrate

Based on your findings, which of the following is the best antibiotic choice for her?

- A. Gatifloxacin 400 mg q day for 10 days
- B. Amoxicillin 500 mg tid for 10 days
- C. Azithromycin 500 mg 2 PO today, then 1 PO q day x 4 days
- D. Amoxicillin-clavulanate 850 mg PO bid for 10 days
- E. Cefuroxime 250 mg PO bid for 10 days

93.

You are seeing a 50-year-old nurse, who works at a local hospital. He has had annual tuberculin skin testing for 30 years. His last PPD a year ago was 7 mm. Today he presents at 72 hours for reading of his PPD placed earlier in the week. He is healthy and denies any health problems, particularly no fevers, sweats, or weight loss. This is an employee health check, and therefore no physical exam or other information is obtainable.

LABORATORY: PPD at 72 hours: 17 mm
 CXR: Normal

Based on the data presented, which of the following is the most appropriate next step?

- A. No treatment because he is older than 35 years old.
- B. 4-drug therapy because he is high-risk by being in a hospital environment.
- C. Start INH 300 mg daily for 12 months.
- D. Start INH 300 mg daily for 9 months.
- E. Repeat PPD in 2 weeks; if still positive then start therapy.

94.

Your next patient is an 18-year-old woman who is HIV-infected. Her most recent CD4 count was 10. She is moving to your area from Iowa. She says she had a TB skin test 2 years ago and some other skin tests, all of which were read as 0 mm. She remembers that the doctor there told her to tell people the number was “0 millimeters” and not “negative.”

PAST MEDICAL HISTORY:	She has not required hospitalization in 3 years; at that time, she was hospitalized for <i>Pneumocystis</i> pneumonia, which was when she was diagnosed with HIV and found to have AIDS.
MEDICATIONS:	Trizivir one PO bid, which she has been on for 3 months (she is now adherent, though she says in the past she had not been) Bactrim DS one PO M, W, F Azithromycin q week
SOCIAL HISTORY:	Lives with her boyfriend, a welder She works as a waitress at the local IHOP Smokes 3 packs/day cigarettes Doesn't drink
FAMILY HISTORY:	Unknown; ran away from home at age 13
REVIEW OF SYSTEMS:	Occasional night sweats Low-grade fevers every 3–5 days Sore throat on occasion Cough daily; especially in the morning Loose stools daily; normal for her is 4–5 bowel movements daily; no blood Vomiting on occasion No rash Decreased appetite
PHYSICAL EXAMINATION:	Fairly well-appearing woman in no distress BP 110/70, P 90, RR 14, Temp 99° F, Ht 5' 5", Wt 110 HEENT: PERRLA, EOMI TMs clear Throat clear Neck: Supple; no masses Heart: RRR with no murmurs, rubs, or gallops Lungs: Scattered rhonchi at bases; cleared with cough Abdomen: Bowel sounds present; liver span 10 cm; no spleen palpated Extremities: No cyanosis, clubbing, or edema Skin: Facial acne; no other rashes
LABORATORY:	WBC: 2,400 with 70% lymphs, 20% neutrophils Hgb: 12.5 mg/dL; MCV 105 Platelets: 450,000 Electrolytes: Normal Albumin: 3.4 mg/dL AST: 30 U/L ALT: 25 U/L Total bilirubin: 0.4 mg/dL Viral load: < 50 copies/mL CD4: 50

She is due for her tuberculosis screening; which of the following do you recommend?

- A. PPD containing 5 TU of tuberculin with 2 controls (mumps and *Candida*)
- B. 2-step boosted PPD with 5 TU of tuberculin (place one today and repeat in 2 weeks)
- C. PPD containing 250 TU of tuberculin without controls
- D. PPD containing 5 TU of tuberculin without controls
- E. PPD containing 250 TU of tuberculin with 2 controls (mumps and *Candida*)

95.

Which of the following is not considered an indication to place a patient on treatment for latent tuberculosis infection (assume all CXRs are normal)?

- A. PPD reading at 72 hours of 11 mm in a prisoner
- B. PPD reading at 48 hours of 6 mm in a patient who lives with a person who has active tuberculosis
- C. PPD reading at 48 hours of 16 mm in a healthy 20-year-old
- D. PPD reading at 72 hours of 7 mm in an asthmatic patient on 5 mg/day of prednisone
- E. PPD reading at 72 hours of 11 mm in a diabetic

96.

A 30-year-old health care worker was recently found to have a PPD of 12 mm on his routine screen. He is about to be started on INH therapy of 300 mg daily for 9 months. He is otherwise healthy and has no complaints. His CXR was normal.

PAST MEDICAL HISTORY: Negative; except for gonorrhea at age 18

SOCIAL HISTORY: Lives with mother in a motel
Drinks on occasion; 2 beers at most on a weekend

FAMILY HISTORY: Mother 60, healthy, runs the motel
Father died at age 30; murdered at the motel
No siblings

REVIEW OF SYSTEMS: Negative
Denies fever, chills, sore throat
Occasionally hears voices—knows they are not real

PHYSICAL EXAMINATION: BP 110/70, P 55, RR 14, Temp 98.5° F
Well-developed, well-nourished man in no distress
HEENT: PERRLA, EOMI
TMs: clear
Throat: clear
Neck: Supple, no masses
Heart: RRR with S₄ gallop (runs marathons)
Lungs: Scattered rhonchi; cleared with cough
Abdomen: No masses; no hepatosplenomegaly; non-tender
Extremities: No cyanosis, clubbing, or edema

You are about to start him on INH.

Of the following options, when should you check screening laboratory (AST, ALT, and bilirubin)?

- A. Today, then q month for 3 months; none after that unless has problems
 - B. Today, then q month until therapy complete
 - C. Today, then q month for 3 months; then every other month until completes therapy
 - D. Today, then in 1 week; then q month until finishes therapy
 - E. None needed unless clinical symptoms/problems develop
-

97.

You are seeing a 29-year-old with documented tuberculosis. He is currently on INH, rifampin, PZA, and ethambutol. He comes in because he has noted that he cannot see colors as well. He is an interior decorator and noted that last week he tried to put two shades of teal together, and he was embarrassed when he realized what he had done.

PAST MEDICAL HISTORY: Essentially negative
Tuberculosis exposure was from his mother, who works in a nursing home

SOCIAL HISTORY: Smokes 1 ppd for 10 years
Drinks alcohol at night; quit when started on his anti-TB meds
Lives with his mother
Not sexually active

FAMILY HISTORY: Mother 55, with cavitory TB diagnosed 4 months ago
Father died 10 years ago of massive stroke; age 60

REVIEW OF SYSTEMS: Besides the vision changes, no other problems

PHYSICAL EXAMINATION: Essentially normal
Snellen office chart shows 20/30 vision in both eyes

Referral to ophthalmologist for extensive eye examination reveals loss of color discrimination.

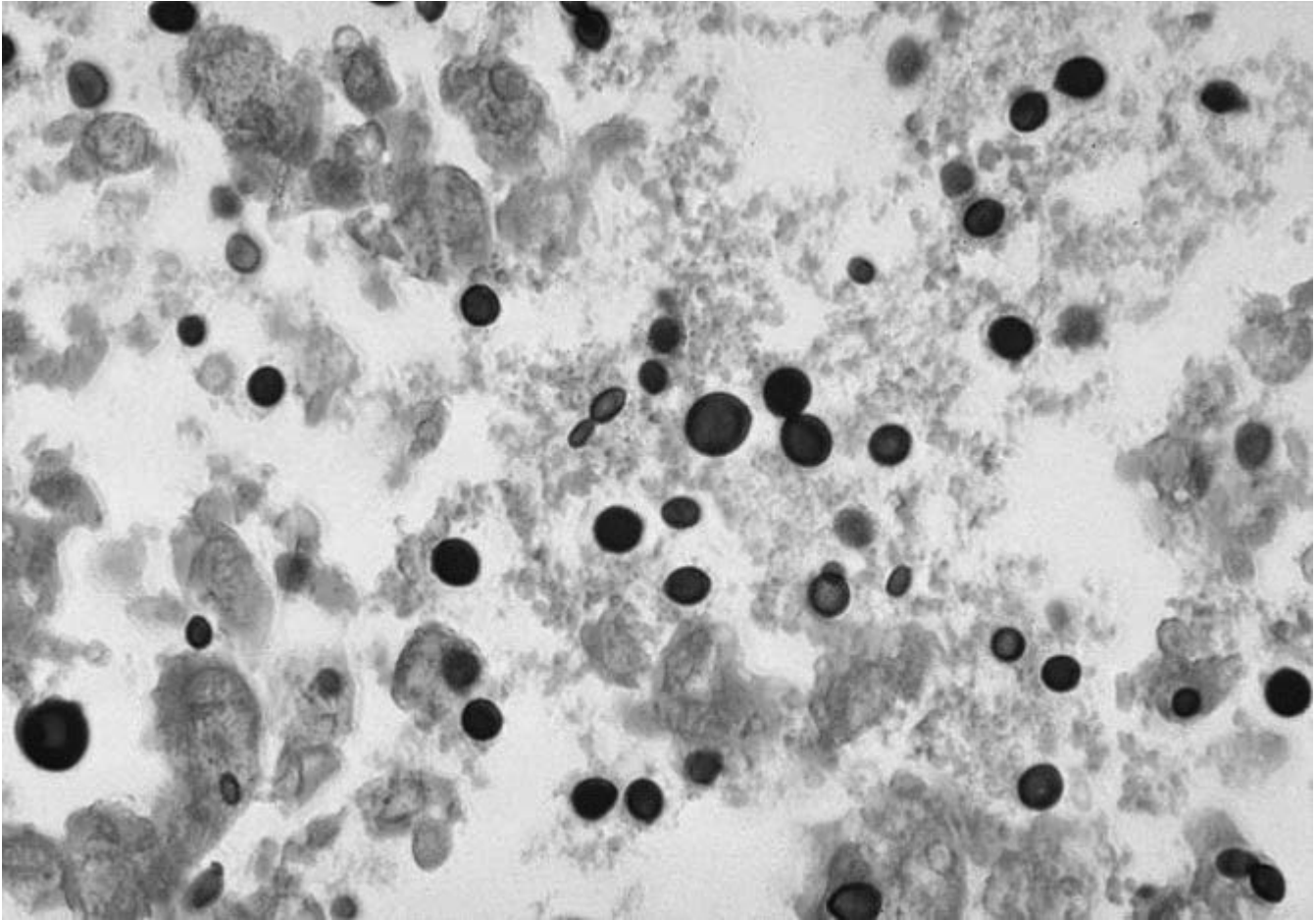
Which of the following is the most likely etiology for his change in vision?

- A. INH toxicity
 - B. Rifampin toxicity
 - C. Ethambutol toxicity
 - D. Tuberculous involvement of the retina
 - E. Combination of ethambutol and INH toxicity
-

98.

A 45-year-old woman with lymphoma has been neutropenic for 10 days and develops nodules in her lungs on CXR. Initially she is treated with broad-spectrum antibiotics. Amphotericin B is added on day 7, which is also the day the nodules are seen on CXR. She has been having continued fevers and now is developing respiratory distress.

A biopsy of her lung is shown in this figure (see Appendix B color image Figure 8):



It is a methenamine silver stain. The histopathology shows numerous extracellular yeasts within an alveolar space. The yeasts show a narrow based budding and are of different sizes. A different stain would accentuate the capsule of this organism.

Based on your findings at lung biopsy, which of the following studies should you order next?

- A. Ultrasound of her liver
- B. Nothing; continue treatment with amphotericin B
- C. MRI of the mandible
- D. Lumbar puncture
- E. Upper endoscopy

99.

An obese 60-year-old man with diabetes mellitus complains that lately he will fall asleep during the middle of conversations and that he spends half his day asleep in front of the television set. His favorite show, he says, is the “Andy Griffith Show,” and he has all of the episodes taped. He tries to talk about his favorite show, but he falls asleep mid-sentence. His wife says this happens all the time.

You send him for formal sleep testing, and he is found to have moderate obstructive sleep apnea-hypopnea (OSAH).

Besides weight loss and avoidance of alcohol and sedatives, which of the following have been proven to be effective in treatment of OSAH?

- A. Sleeping supine
- B. Using hypnotics to induce sleep at night
- C. Nasal continuous positive airway pressure (CPAP)
- D. Sleeping under a fan
- E. Watching “Leave It to Beaver” instead of “Andy Griffith” reruns

100.

A 67-year-old man with a 100-pack/year history of smoking (2 packs/day for 50 years) is essentially dragged in by his wife, who says that he has withered away to nothing and has been acting very confused lately. He says he is fine but keeps calling you his grandchild. You don’t get much more information out of him.

PAST MEDICAL HISTORY: Prostatectomy 5 years ago
HTN for 20 years on an ACE inhibitor

SOCIAL HISTORY: Retired used car salesman
Lives with his wife of 50 years
Doesn’t drink

FAMILY HISTORY: Father died at age 75 of lung cancer
Mother died at age 74 of lung cancer
Brother died at age 74 of lung cancer
Sister died at age 74 of lung cancer

REVIEW OF SYSTEMS: No fever or chills
Has had night sweats on occasion
30-lb weight loss in last 6 months
No appetite
Coughed up blood once last week (about a teaspoon, according to wife)

PHYSICAL EXAMINATION: Oriented only to person, place; thinks the year is 1978 (misses Disco)
BP 110/70, P 92, RR 14, Temp 99° F, Ht 6' 1", Wt 170
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple, no masses

LABORATORY:	Heart:	RRR with II/VI systolic murmur (heard for 10 years now)
	Lungs:	Coarse scattered crackles; no focal findings
	Abdomen:	Bowel sounds present; no hepatosplenomegaly
	Extremities:	No cyanosis, clubbing, or edema
	CXR:	Central/hilar mass with area of cavitation
	Calcium:	11.5 mg/dL

Based on your findings, which of the following types of lung cancer does this man most likely have?

- A. Large cell
- B. Adenocarcinoma
- C. Small cell
- D. Bronchoalveolar carcinoma
- E. Squamous cell carcinoma

101.

A 74-year-old woman with a 100-pack year history of smoking (2 packs/day for 50 years) is essentially dragged in by her husband, who says that she has withered away to nothing and has been acting very confused lately. She says she is fine but keeps calling you her grandchild. You don't get much more information out of her.

PAST MEDICAL HISTORY: Hysterectomy 24 years ago
HTN for 20 years; on an ACE inhibitor

SOCIAL HISTORY: Retired used car salesperson
Lives with her husband of 50 years
Doesn't drink

FAMILY HISTORY: Father died at age 75 of lung cancer
Mother died at age 74 of lung cancer
Brother died at age 74 of lung cancer
Sister died at age 74 of lung cancer
Brother recently diagnosed with lung cancer

REVIEW OF SYSTEMS: No fever or chills
Has had night sweats on occasion
30-lb weight loss in last 6 months
No appetite
Coughed up blood once last week (about a teaspoon, according to husband)

PHYSICAL EXAMINATION: Oriented only to person, place; thinks the year is 1965 (misses Elvis)
BP 110/70, P 92, RR 14, Temp 99° F, Ht 5' 2", Wt 140
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple, no masses
Heart: RRR with II/VI systolic murmur (heard for 10 years now)
Lungs: Coarse scattered crackles; no focal findings
Abdomen: Bowel sounds present; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema

LABORATORY:	CXR:	Central mass seen in right hilum; no cavitation noted
	Serum sodium:	120 mg/dL
	Urine sodium:	60 mg/dL (normal should be less than 10 mg/dL with this serum sodium)

Based on your findings, which of the following types of lung cancer does this woman most likely have?

- A. Large cell carcinoma
 - B. Adenocarcinoma
 - C. Squamous cell carcinoma
 - D. Small cell carcinoma
 - E. Bronchoalveolar carcinoma
-

102.

An otherwise healthy 50-year-old woman presents after being discharged from the hospital with a recent diagnosis of lung cancer with a 2-cm isolated tumor. She was found to have squamous cell carcinoma, stage 1A (T1, N0, M0). She is here to find out what further therapy is indicated.

Which of the following is the next therapy for her?

- A. After surgical resection, chemotherapy is indicated.
 - B. After surgical resection, radiation therapy is indicated.
 - C. After surgical resection, chemotherapy and radiation therapy are indicated.
 - D. After surgical resection, follow-up resection is indicated.
 - E. After surgical resection, no further therapy is indicated.
-

103.

An 18-year-old man presents for evaluation and relates that he has a herd of cattle. About 3 weeks ago, he was helping a cow deliver, and he had to assist the cow by manually removing the calf and the placenta. The cow was not ill before the delivery. He reports that he became ill about 2 days ago with a high fever, night sweats, and cough. He has noted that he also has a left upper quadrant tenderness in his belly.

PAST MEDICAL HISTORY: Negative; healthy farm boy

SOCIAL HISTORY: Lives with his mother, a widow
 Has 3 cats, 2 dogs, and a pet iguana
 Chews tobacco
 Doesn't drink alcohol

FAMILY HISTORY: Dad died at the age of 35 in a bull-riding accident
 Mother healthy, 40
 Has 2 younger sisters

REVIEW OF SYSTEMS: Complaints of joint aches and pains with the fever
 Headache
 Weakness

PHYSICAL EXAMINATION:	BP 110/80, P 110, RR 20, Temp 103° F, Ht 6' 1", Wt 210 lbs
	Well-developed, very muscular man in some distress
HEENT:	PERRLA, EOMI
	TMs clear
	Throat: mild erythema
Neck:	Supple, no meningismus
Heart:	RRR without murmurs, rubs, or gallops
Lungs:	Coarse breath sounds with defined crackles at the right base
Abdomen:	Bowel sounds present; liver edge palpated 5 cm below right costal margin; spleen tip palpated 4 cm below left costal margin
Extremities:	No cyanosis, clubbing, or edema
Skin:	No rashes
LABORATORY:	
	WBC: 18,000 with 75% polys, 20% bands
	Hgb: 16.0 mg/dL
	Platelets: 150,000
	Electrolytes: Normal
	AST: 100
	ALT: 120
	CXR: Right lower lobe pneumonia

Which of the following is the likely etiology of his pneumonia?

- A. *Coxiella burnetii*
 - B. *Francisella tularensis*
 - C. *Streptococcus pneumoniae*
 - D. *Staphylococcus aureus*
 - E. *Yersinia pestis*
-

104.

A 25-year-old asthmatic patient has a history of frequent exacerbations. On CXR, she frequently has lung infiltrates that migrate and do not seem to respond to antibiotic therapy. She is usually afebrile during these episodes, but it really sets off her asthma and she has a significant exacerbation. Usually she has to be admitted to the hospital and placed on systemic steroids, with aggressive pulmonary management.

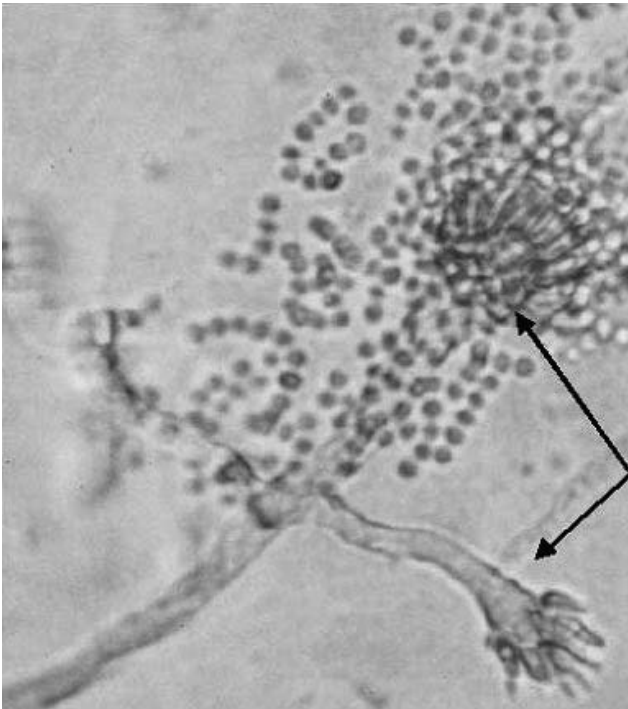
PAST MEDICAL HISTORY: Asthma since early childhood; has never required mechanical ventilation
Has one child, age 2; no problems during pregnancy

MEDICATIONS: Albuterol prn
Cromolyn sodium daily
Zafirlukast daily

SOCIAL HISTORY: A 3rd year medical student (considering a career in Radiology)
Married and lives with husband and 2-year-old son

FAMILY HISTORY: Mother 50 and healthy
Father 50 and has hypertension
No siblings

REVIEW OF SYSTEMS:	Occasional headache Stressed by 3 rd year rotations
PHYSICAL EXAMINATION:	Well-developed, well-nourished woman in moderate respiratory distress BP 110/60, P 90, RR 30, Temp 98° F
HEENT:	PERRLA, EOMI TMs clear Throat clear
Neck:	Supple; no masses
Heart:	RRR without murmurs, rubs, or gallops
Lungs:	Scattered wheezes especially in upper lung fields Poor airway movement Few scattered crackles
Abdomen:	Bowel sounds present; no hepatosplenomegaly
Extremities:	No cyanosis, clubbing, or edema
Skin:	No rashes
LABORATORY:	WBC: 10,000 with 50% polys, 20% lymphs, 30% eosinophils Hgb: 13.5 mg/dL Platelets: 340,000 CXR: Scattered infiltrates throughout all lung fields Sputum: Normal flora on bacterial stain KOH is shown in this figure: (see Appendix B color image Figure 9)



Based on your findings, which of the following is the best treatment for her condition?

- A. Itraconazole 200 mg bid x 3 days, then daily thereafter
 - B. Amphotericin B IV 1 mg/kg IV q day
 - C. Amphotericin gargles with 5 mg in a 200 cc suspension
 - D. Systemic corticosteroids and itraconazole
 - E. Fluconazole 200 mg bid x 1 day then once daily thereafter
-

105.

A 30-year-old male is brought to the emergency department after being found unresponsive at home with a syringe in his arm. The patient is unresponsive, blood pressure is 120/60, and pulse is 100. His pupils are very small and unreactive. He appears cyanotic, and his respiratory rate is 8/minute. Arterial blood gas on room air shows a pH 7.22, PCO_2 of 72 and a PO_2 of 50.

Which of the following is responsible for this patient's hypoxemia?

- A. Alveolar hypoventilation alone
 - B. Low V/Q ratio
 - C. Alveolar hypoventilation plus low V/Q
 - D. Alveolar hypoventilation plus right-to-left shunt
 - E. Venous blood was sampled, not arterial
-

106.

A 26-year-old female is admitted to the ICU after an emergency exploratory laparotomy for a ruptured ectopic pregnancy. She received 16 units of packed cells in the OR, and a Swan-Ganz catheter was placed by anesthesia because they heard rales and were concerned about volume overload. On admission, she is in shock with a blood pressure of 70/30 and a hemoglobin of 5.0 g/dL. She is on mechanical ventilation in CMV mode with FiO_2 60%, PEEP 10 cm, Rate 20, and Tidal Volume 700 cc. Two additional units of packed cells were given on arrival to the ICU, and the blood pressure came up to 100/60, and the heart rate is 120/minute. Post-transfusion labs reveal a hemoglobin of 7.0 g/dL, and the Swan-Ganz readings show a cardiac output of 10 L/min, pulmonary arterial "wedge" pressure of 12 mmHg, and a systemic vascular resistance of 600 dyne-sec-cm (low). The arterial blood gas now is PO_2 85 mmHg, PCO_2 44 mmHg, and pH of 7.26.

Which of the following therapies is the most appropriate next step in continuing the resuscitation of this patient?

- A. Increase the rate of the ventilator to increase the minute ventilation and lower the PCO_2 .
 - B. Increase FiO_2 to 70%.
 - C. Transfuse 2 units packed red blood cells.
 - D. Start dobutamine at 10 $\mu\text{g/kg/min}$ to increase the cardiac output.
 - E. Start dopamine at 10 $\mu\text{g/kg/min}$ to increase the systemic vascular resistance.
-

107.

A 30-year-old woman comes to your office complaining of shortness of breath. She states that she first noticed the shortness of breath 6 months ago. She is fine at rest but cannot go jogging any longer due to shortness of breath, and she is awakened at night once or twice a week with a feeling that she can't catch her breath. She denies fever, cough, sputum production, orthopnea, or chest pain. On exam, she is a well-appearing female in no apparent distress. The cardiovascular exam is normal, and auscultation of the lungs is normal. There is no leg edema, clubbing, or cyanosis. You perform routine blood work that indicates a normal CBC and chemistries. A chest x-ray is normal, and spirometry done in the office is normal. An arterial blood gas on room air shows pH 7.41, PCO₂ 40 mmHg, and PO₂ of 90 mmHg.

Which of the following diagnostic tests would you perform next?

- A. High-resolution CT (HRCT) of the chest
 - B. Echocardiography
 - C. Full pulmonary function tests with diffusing capacity determination
 - D. Flow-volume loop
 - E. Exercise challenge test
-

108.

A 60-year-old male is sent to you by his orthopedist for pre-op clearance prior to elective hip arthroplasty. The patient has a history of asthma and is a non-smoker, though admits to smoking 1 pack a day when he was in his 20s. He is on a steroid inhaler twice a day and reports that he uses his beta-agonist inhaler only once or twice a week. On physical exam, he is well appearing except for a limp in his right leg. His respiratory rate is 16/minute. Examination of the chest is normal with only a few scattered end-expiratory wheezes. The remainder of the physical examination is unremarkable. A peak flow done in the office is 90% of his predicted value.

Which of the following is/are the most appropriate step(s) to take prior to your clearing the patient for surgery?

- A. Spirometry before surgery.
 - B. Pulmonary consultation.
 - C. Spirometry and arterial blood gasses with a carboxyhemoglobin level.
 - D. You refuse to clear him for any elective surgery.
 - E. No pulmonary function tests prior to surgery.
-

109.

A 30-year-old female comes to the office with complaints of dyspnea, cough, and wheezing for the past 4 months. She reports that initially the symptoms were related only to exercise, which forced her to stop her aerobic workouts. Now she has daily symptoms even at rest and awakens several nights a week with wheezing. She is a non-smoker. She denies any particular environmental factors and had no respiratory problems until now. On exam, she has a very mild end-expiratory wheeze. Office spirometry reveals a reduced FEV₁ and FEV₁/FVC at 70% predicted.

Which of the following is the best initial treatment plan?

- A. Low-dose inhaled corticosteroid alone
 - B. Inhaled cromolyn, 4 times a day
 - C. Inhaled beta2-agonist, every 4-6 hours
 - D. Inhaled corticosteroid plus long-acting beta-agonist
 - E. Sustained release theophylline, twice a day
-

110.

A 65-year-old male comes to the emergency department with increasing respiratory distress over the past 2 days. He is a smoker and has known COPD, for which he has been hospitalized twice in the past year for exacerbations. The patient appears cyanotic, in moderate distress utilizing accessory musculature and perched forward sitting on the stretcher. He is alert and reports feeling “better” since getting to the emergency department. Lung sounds are quite diminished in all lung fields, and an ABG on room air shows pH 7.30, PCO₂ 63 mmHg, and a PO₂ of 44 mmHg. The respiratory therapist is awaiting your orders.

Your orders for initial oxygen therapy should be which of the following:

- A. Nasal oxygen, 1–2 L/min with follow-up ABG in 20 minutes. Increase oxygen flow based on the ABG to a PO₂ of 55–60 mmHg.
 - B. Intubate the patient and place on mechanical ventilation with an initial FiO₂ of 100%.
 - C. O₂ 100% by non-rebreather face mask with continuous pulse oximetry.
 - D. Nasal oxygen initially, 3–4 L/min with pulse oximetry to achieve a saturation of 92% or greater.
 - E. Withhold oxygen therapy at this time since patient is stable and you do not want to induce further respiratory acidosis.
 - F. Institute BiPAP therapy because patient is already showing signs of inspiratory fatigue and respiratory acidosis.
-

111.

A 40-year-old female comes to your office complaining of increased dyspnea and coughing brownish sputum. She is well known to you, and has had stable asthma for the past 5 years with good control achieved with her inhaled corticosteroid and occasional use of her beta-agonist inhaler. This is her third visit to your office in the past 2 months for exacerbation of her asthma. At this visit you do a chest x-ray, which shows patchy pulmonary infiltrates, and blood work that indicates a mildly elevated WBC count with eosinophilia on the differential.

Which of the following is not consistent with a diagnosis of allergic bronchopulmonary aspergillosis (ABPA)?

- A. Expectoration of brown mucous plugs and airway casts
 - B. Marked elevation in serum IgE level
 - C. Immediate skin test reaction (Type I, wheal and flare) to *Aspergillus fumigatus*
 - D. Delayed (Type IV, cell mediated) skin test reaction to *Aspergillus fumigatus*
 - E. Sputum culture positive for *Aspergillus fumigatus*
-

112.

A surgical colleague calls you one afternoon asking if you could see him in your office. You know him to be a healthy 50-year-old male who likes to play tennis and golf. When he arrives at the office, you notice that he appears thinner and less tan than usual. He is carrying a large manila envelope that you see contains x-rays. He reports that he has had a dry, nagging cough for the past 4 weeks. He self-medicated himself with a quinolone antibiotic that he had at the office and after 2 weeks, he switched to azithromycin. He grew concerned when he developed low-grade fever, the cough became productive of clear phlegm, and he noticed that he was winded early in a set of tennis. He had a chest x-ray at the hospital today and decided to bring it to you to look at. On physical exam you find no abnormalities, and his lungs are clear to auscultation. You walk him to the lab where a CBC is done, and you find a mild elevation in the WBC count. His chest x-ray shows diffuse bibasilar parenchymal fibrotic pattern and patchy airspace densities in the right lower lobe.

Which of the following is the most likely diagnosis?

- A. Idiopathic pulmonary fibrosis
 - B. Allergic bronchopulmonary aspergillosis
 - C. Loeffler syndrome
 - D. Cryptogenic organizing pneumonia (COP)
 - E. Hypersensitivity pneumonitis
-

113.

A 21-year-old woman is brought to your office, accompanied by her parents, after a “near syncope” event at home while they were carrying the daughter’s trunk of dirty laundry into the house on her arrival from college. The daughter admits to feeling lightheaded while carrying the laundry and says that she is often short of breath climbing the 2 flights of stairs to her dormitory room. Upon further questioning, she admits to substernal chest pain accompanying her exertional dyspnea, but states that it isn’t important because “I’m too young to have a heart attack.” She denies fever, cough, hemoptysis, wheezing, orthopnea, or ankle swelling. She is on no medications and denies smoking or illicit drugs. She is sexually active but has never used oral contraceptives.

On physical exam, she is afebrile with a heart rate of 90 and a blood pressure of 110/60. She is of average build and in no apparent distress. Neurological exam is normal. Her lungs are clear on auscultation. Her cardiovascular exam is remarkable for a parasternal heave and an increase in the intensity of P2. You perform a chest x-ray, which is normal, and an ECG, which reveals normal sinus rhythm with right axis deviation. CBC and basic chemistries are normal. Pregnancy test is negative.

Which of the following is the most appropriate procedure for further evaluation of this patient?

- A. Pulmonary function tests
 - B. Echocardiogram
 - C. Exercise stress test
 - D. V/Q scan
 - E. Right heart catheterization
-

114.

An 80-year-old male is admitted to the hospital with dyspnea and a large right-sided pleural effusion. He is afebrile, complains of a cough that is productive of whitish-clear sputum and reports about a 10-lb. weight loss over the previous 6 months. He denies fever, chills, night sweats, hemoptysis, or chest pain. He has a 50-pack/year history of smoking but quit recently as a 50th anniversary present for his wife. He worked as an accountant and worked in the Brooklyn Naval Yard in World War II but denies any asbestos exposure.

On physical exam he is noted to be afebrile, without adenopathy or skin lesions. Breath sounds are diminished at the right side, and he has dullness to percussion posteriorly to the inferior border of the scapula. There is no clubbing, cyanosis, or edema; his nails and fingertips on his right hand are discolored from nicotine.

CBC: WBC count of 5,000 with 50% neutrophils, 3% bands, 24% lymphs, 17% monocytes, and 6% eosinophils

Serum chemistries indicate: Glucose 84 mg/dL; protein 7.8 g/dL; LDH 162 U/L

Review of the chest x-rays (PA, lateral, decubitus) shows a large, free-flowing effusion with no discernible underlying lung or mediastinal pathology.

Sputum Gram stain has a few WBCs, no organisms

Sputum cytology: Negative for malignant cells

You perform a right-sided thoracentesis and remove almost 1 liter of dark, straw-colored fluid. Pleural fluid is sent for routine studies:

Cell count:	RBCs 8100/ μ L		
	WBC 3600/ μ L	Differential:	88% lymphocytes
			1% neutrophils
			11% monocytes
Fluid Chemistries:	Glucose	45 mg/dL	
	Protein	5.9 mg/dL	
	LDH	332 U/L	

Cytology: Negative

Which of the following is the most likely etiology of this patient's pleural effusion?

- A. Tuberculosis
- B. Parapneumonic effusion
- C. Lymphoma
- D. Bronchogenic carcinoma
- E. Malignant mesothelioma

115.

A 40-year-old female patient comes to your office with complaints of a "flu-like" illness that began 4 days ago. She has just returned from Ohio, where she remembers there was a flu going around the neighborhood. While in Ohio, she helped her parents and neighbors shovel out an old barn that had been used as a bird roost.

Which of the following would you recommend?

- A. Cultures for *Histoplasma capsulatum*
 - B. A histoplasmin skin test
 - C. Acute and convalescent serologic testing and treatment with amphotericin B
 - D. Empiric trial of amphotericin B
 - E. No testing or therapy
-

116.

A 55-year-old male mail carrier is referred to your office from the hospital emergency department. He had been seen there after a fall on the ice, which left him with right-side pain. In the emergency department he had a chest x-ray done to look for rib fractures. No rib fractures were found, but a 2.5-mm smooth, well-demarcated peripheral lesion was seen in the left lower lobe. He is a non-smoker and reports to be in good health. He denies any occupational exposures and enjoys the long walks while delivering the mail. His father is alive with hypertension; his mother died of breast cancer. He had a prior chest x-ray 1 year ago for a “rule-out” pneumonia office visit.

Which of the following is the most appropriate next step?

- A. Bronchoscopy.
 - B. Transthoracic needle biopsy.
 - C. Thoracic surgery.
 - D. Obtain prior chest x-rays for comparison.
 - E. Order sputums for AFB and fungus.
-

117.

A 50-year-old male patient is brought to your office at his wife’s insistence. You have seen him in the past for borderline hypertension, but when you last saw him 2 years ago, he was on no medications. His wife has insisted that he come today because she says that he is always sleeping. She adds that he fell asleep parking the new car in the driveway and crashed through the garage wall. She states that his snoring has gotten so bad that she has moved to another bedroom. The patient admits to being even sleepier during the daytime, though he thinks that he gets a good night’s sleep. He knows he snores, but it doesn’t bother him. He admits to waking up tired and often with morning headaches. He is concerned about his performance at work, where he sometimes operates heavy equipment. He denies that he is depressed and states that he doesn’t use drugs or alcohol.

On physical exam, you note that he has gained 20 lbs since his visit 2 years ago and that he now weighs 230 lbs. He is 5' 8". Blood pressure on repeated measurement is 170/105. On examination of his throat, you notice for the first time his large uvula. Cardiopulmonary as well as neurological exams are within normal limits.

Which of the following would you recommend?

- A. Order polysomnography.
- B. Order polysomnography with trial of nasal continuous positive airway pressure (CPAP).
- C. Advise weight loss, exercise regimen, and follow-up visit in 1 month.
- D. Ear, nose, and throat consultation for uvulopalatopharyngoplasty.
- E. Recommend an initial trial of acetazolamide and theophylline before more invasive testing is performed.

118.

A 74-year-old male with a known history of COPD presents to the emergency department cyanotic and in severe respiratory distress. He is a thin man weighing 70 kg. An arterial blood gas indicates severe respiratory acidosis and hypoxemia on room air (pH 7.00; PCO_2 120 mmHg; and PO_2 40 mmHg). He is intubated immediately and placed on mechanical ventilation in the assist/control mode at the following settings:

Rate: 25/min Tidal Volume: 1,000cc Peak inspiratory flow rate: 50 L/min

When you arrive in the emergency department to see your patient, you note that his blood pressure is 60/30 and his heart rate is 140/min. His pulse is thready, his neck veins are full, and his trachea is midline. There are equal breath sounds bilaterally. There are many alarm lights going off on the ventilator. You yell for someone to page Respiratory Therapy, disconnect the patient from the ventilator for a few minutes, and watch his blood pressure and heart rate improve.

The respiratory therapist arrives.

Which of the following orders do you give the respiratory therapist for mechanical ventilation?

- A. T-bar with 80% oxygen on blow by
- B. Assist/control mode, Rate 12/min, Tidal Volume 700cc, Peak flow 80 L/min
- C. Assist/control mode, Rate 28/min, Tidal Volume 600cc, Peak flow 40 L/min
- D. Assist/control mode, Rate 18/min, Tidal Volume 1000cc, Peak flow 60 L/min

119.

A 42-year-old woman with a history of end-stage renal disease on hemodialysis presents to the emergency department with fever of 103° F, shaking chills, hypotension 70/50, tachypneic, and tachycardic. Her dialysis graft site is erythematous, warm to the touch, and has purulent drainage at a prior access site. A diagnosis of septic shock is made, and the patient is given intravenous antibiotics, IV fluids, and arrangements are made to transfer the patient to the ICU with a vascular surgery consult to remove the hemodialysis graft. The intensivist meets the patient in the emergency department and immediately places a Swan-Ganz catheter out of concern of volume overloading this patient with end-stage renal disease and now a non-functioning dialysis catheter.

The initial hemodynamic profile for this patient would most resemble which of the following?

	Cardiac Output L/min	Systemic Vascular Resistance dynes-sec/cm ⁵	Wedge Pressure mmHg
A	High	Low	Low
B.	Low	High	Low
C.	Low	High	High
D.	Low	High	Normal/Low

120.

A 60-year-old male patient is found to have a 4-cm lung mass in his right upper lobe on CXR. CT scan confirms that it is suspicious for malignancy, but there are no other lesions or significant adenopathy. Bullous lung disease is noted in the apices, particularly on the right. A fine needle aspiration of the mass reveals non-small cell carcinoma. A thoracic surgery consult is requested, but the surgeon refers him back to you for pre-op clearance. The patient has a history of asthma and admits to at least a 30 pack/year history smoking, though he has cut back to “a few a day.” He reports that he uses his beta-agonist inhaler only once or twice a week because it only makes him cough.

On physical exam, he is well appearing except for a limp in his right leg. His respiratory rate is 16/minute. Examination of the chest is normal with only a few scattered end-expiratory wheezes. The remainder of the physical examination is unremarkable. Pulmonary function tests (with bronchodilators held prior to testing) reveal an obstructive pattern with FEV₁ of 1.6 liters. There is minimal response to bronchodilators in the lab. ABG on room air show pH 7.41, PaCO₂ 38, and PaO₂ of 87.

In addition to initiating a smoking-cessation program, which of the following do you recommend?

- A. Refer him to an oncologist for non-surgical treatment of his tumor.
 - B. Refer him for a pulmonary consultation.
 - C. Order a quantitative ventilation scan.
 - D. Start inhaled steroids and repeat PFT in 4 months.
-

121.

A 75-year-old male is admitted to the hospital with an exacerbation of COPD. He is treated with oxygen, antibiotics, and bronchodilators. On the fourth day, he is feeling better and he wants to go home. A pulse oximetry on room air today reveals a saturation of 89%, which was confirmed by a simultaneous ABG on room air, which demonstrated a P_aO₂ of 58 and a saturation of 89%. With ambulation, the oxygen saturation falls to 86%, and the patient becomes dyspneic. His Hct on admission was elevated to 52%. You request a referral from Social Services for home oxygen for your patient, and you are told that “he doesn’t qualify but he could pay for it himself.” Your patient, and his family, are quite distressed to learn that they will have to pay for the oxygen out of their own pockets. You are determined to see if you can get your patient qualified for home oxygen.

Which of the following is the best plan of action?

- A. Secretly tell your patient to ambulate and repeat the ABG.
 - B. Order an ECG and echocardiogram to evaluate for cor pulmonale.
 - C. Resubmit the application on the basis of his erythrocytosis.
 - D. Take up a collection for your patient.
-

122.

A 40-year-old female comes to your office complaining of increased dyspnea and coughing accompanied by fever and night sweats. She is well known to you and has had stable asthma for the past 10 years, with good control achieved with her inhaled corticosteroid and occasional use of her beta2-agonist inhaler. This is her third visit to your office in the past 2 months for “exacerbation of her asthma.” CBC indicates a mildly elevated WBC count with 15% eosinophils.

Which of the following would a chest x-ray most likely reveal?

- A. No infiltrates
 - B. Bilateral peripheral infiltrates
 - C. Segmental atelectasis
 - D. Right upper lobe cavity
-

123.

A 52-year-old man presents to your office with a 2-month history of exertional dyspnea and nonproductive cough. There is no history of wheezing or prior asthma. He has a 10 pack/year smoking history but quit 10 years ago. There is no history of chest pain, and he has a copy of an ECG done for a recent insurance physical that was normal. He works in an office with no known occupational exposure, and he is on no prescription medications. On exam, he is a well-developed male in no apparent distress. He has no adenopathy. The cardiovascular exam is normal. On examination of the chest, you note late inspiratory crackles at the bases. He has no clubbing, cyanosis, or edema.

LABORATORY STUDIES: Hematocrit 45%; Hemoglobin 15 g/dL
CXR—PA and Lateral: Normal
ABG: pH 7.45; PCO₂ 36 mmHg; PO₂ 70 on room air
Office spirometry: reduced FVC, reduced FEV₁, but FEV₁/FVC normal

Which of the following should be the next step in this patient's workup?

- A. Pulmonary function tests at a PFT lab, which would include a determination of his Total Lung Capacity (TLC) and Diffusing Capacity (DLCO)
 - B. Transbronchial biopsy
 - C. Open lung biopsy
 - D. High-resolution CT of the chest
-

124.

A 51-year-old female presents in an outpatient clinic with a new onset of a rash on her back and chest. This rash began about 2–3 months ago. Initially, she thought it was some form of fungal infection or allergic reaction and applied a 1% hydrocortisone cream without much benefit. The rash was not particularly itchy. At the same time, she had begun to develop some pain in her shoulders and hips but no early morning stiffness and no swelling of the joints of her fingers or toes. At age 16, she had presented with unexplained painful nodules on her lower extremities, but the cause of this was never fully understood and she has never had any recurrence. During her second normal pregnancy, she developed a weakness of one side of her face and was told that she had a Bell's palsy. Her facial expression returned to normal fairly soon after the birth of her child. Her internist had been concerned because he had found mild elevations of her calcium levels 3 years ago and again 6 months ago, but these have normalized on their own. There was no particular explanation found for this at that time. On examination, she was well appearing. Height was 5' 7", weight was 136, BP was 127/76, and pulse was 72. Cardiac and respiratory exams were benign. The abdomen was without hepatosplenomegaly. Musculoskeletal exam revealed no joint synovitis. Neurological exam was normal without any proximal myopathy. Cutaneous exam revealed several circumscribed, somewhat elevated, 2 x 2 coin-sized lesions on her chest and back. Her dermatologist suggested a biopsy.

Which of the following is the most likely pathological finding that could be obtained from the skin biopsy of one of these coin lesions?

- A. Eosinophilic fasciitis
 - B. Non-caseating granulomatous inflammatory changes
 - C. Panniculitis
 - D. Interface dermatitis
-

125.

A 65-year-old male returns to your office for follow-up regarding his COPD. His last visit to you was about 9 months ago. He was diagnosed with COPD about 6 years ago. He has a 50-pack-year history of smoking and stopped smoking about 2 years ago. PFTs reveal an FEV₁ that is 40% predicted. Current pulmonary medications include tiotropium capsule via inhalation once daily along with fluticasone and salmeterol combination diskus twice daily. He uses 2 L oxygen by nasal canula 24 hours/day. He also is currently engaged in pulmonary rehabilitation. He has been compliant with your recommendations for vaccinations for influenza and pneumonia. As you review his chart, you note he has been admitted on 3 different occasions over the last 9 months for respiratory related issues. He has gained about 20 lbs over that time period related to the frequent burst of systemic steroids. He is frustrated by his poor quality of life and frequent hospitalizations. An ABG reveals pH: 7.37, pCO₂ 41, PO₂ 76 on 2 L NC.

Which of the following treatments should be considered next?

- A. Increase his oxygen to 4 L.
 - B. Start nocturnal non-invasive ventilation.
 - C. Start daily prednisone at 40 mg indefinitely.
 - D. Start azithromycin at 250 mg PO daily.
 - E. Refer for lung transplantation.
-

126.

A 54-year-old male presents to your office with complaints of dyspnea with exertion. This has been gradually progressive over the last 6 months. It is not associated with any cough, wheezing, chest pain, or palpitations. He does complain of some foot swelling. An extensive review of systems is performed and he confirms nocturnal snoring and restlessness at night. He also reports that he flew to Dallas, Texas from Philadelphia about 8 months ago. He denies any smoking history.

PHYSICAL EXAMINATION: P: 75, regular, RR 14, O₂ Sats: 95% RA, BP 145/85, BMI 34

Lungs:	Diminished breath sounds at the bases but otherwise clear
CV:	RRR, no m/r/g
Ext:	Trace edema at ankles

A chest radiograph is unremarkable. Pulmonary function tests reveal only a mild reduction in the DLCO to 68% of predicted. Echocardiogram demonstrates normal EF, moderate right ventricular enlargement, and estimated pulmonary artery systolic pressure of 50 mmHg.

What would be the next best step for this patient?

- A. Start sildenafil PO.
- B. Place a central catheter and start IV infusion of epoprostenol.
- C. Perform pulmonary artery catheterization.
- D. Obtain a polysomnography exam.
- E. Start low molecular weight heparin.

127.

A 45-year-old man presents to the emergency department with shortness of breath, pain in his left chest, and subjective fevers. He reports that he completed treatment for outpatient pneumonia with doxycycline about 10 days ago. He has no PMH and denies smoking, alcohol, or illicit drug use.

PE: P 110, RR 22, T 38.6° C, BP 130/65, oxygen saturations: 90% on room air

He appears fatigued but otherwise is not in distress. His lung exam has diminished breath sounds on the left side from the 5th intercostal space to the bases. The remainder of the exam is unremarkable. Chest radiograph reveals:



A thoracentesis is performed and studies on the pleural fluid reveal the following:

Thick and purulent appearing material, pH 7.12; glucose 40; LDH 2345; WBC 59,000; Gram stain was negative and culture is pending; Antibiotics have been initiated.

Which of the following should be performed?

- A. Perform tube thoracostomy.
 - B. Repeat thoracentesis.
 - C. Observe with antibiotics alone.
 - D. Initiate treatment with IV furosemide.
-

128.

A 50-year-old man with a history of chronic obstructive pulmonary disease presents to the emergency department with a 2-day history of sudden-onset cough productive of purulent sputum, shortness of breath, right-sided chest pain, and fever (101° F). He denies any nausea or vomiting. He was treated with azithromycin 3 months ago for sinusitis. No recent hospital admissions. The patient is alert and oriented. He's in moderate distress because of pain and dyspnea. Oral intake is normal.

Vital signs: T 101.5° F, RR 25, HR 85, BP 140/90, O₂ sat 98% on room air. Chest auscultation reveals crackles in the right lower lung zone. A chest x-ray shows a dense opacification of the right lower lobe.

Labs: WBC: 12,500/mm³; hemoglobin: 14 g/dL; BUN: 20 mg/dL; creatinine: 1.1 mg/dL.

Which of the following is the most appropriate next step in management of this patient?

- A. Admit and treat with intravenous ceftriaxone and azithromycin.
 - B. Discharge home on oral azithromycin.
 - C. Discharge home on oral amoxicillin.
 - D. Admit and treat with intravenous cefepime.
 - E. Discharge home on levofloxacin.
-

129.

A 66-year-old female with no significant past medical history is admitted to a non-monitored floor bed with fever, myalgias, and respiratory distress associated with hypoxemia.

VS: T 38.1° C, P 100, BP 120/76, RR 22, oxygen saturations 98% on 3 L NC

A viral culture is obtained and returns positive for influenza A. Oseltamivir is initiated at a dose of 75 mg PO bid. The chest radiograph reveals a diffuse interstitial pattern.

On Day #3, she develops worsening hypoxemia. She requires intubation and mechanical ventilation due to respiratory distress and hypoxemia. Additionally, she has fever to 39.4° C with a chest radiograph now demonstrating lobar infiltrates in both lung bases.

Which of the following would be the next best treatment option?

- A. Start vancomycin, plus a respiratory fluoroquinolone.
- B. Increase oseltamivir to 150 mg PO bid.
- C. Continue current treatment.
- D. Add a respiratory fluoroquinolone alone.

130.

A 62-year-old female returns to your office for follow-up regarding her COPD. She was diagnosed about 9 years ago. She has a 60-pack-year history of smoking and stopped smoking about 2 years ago. She has an FEV₁ that is 40% predicted. Her current pulmonary medications include tiotropium capsule via inhalation once daily along with fluticasone and salmeterol combination twice daily. She has been clinically stable from a dyspnea standpoint. Her last chest radiograph was 4 years ago and she has had no recent hospitalizations.

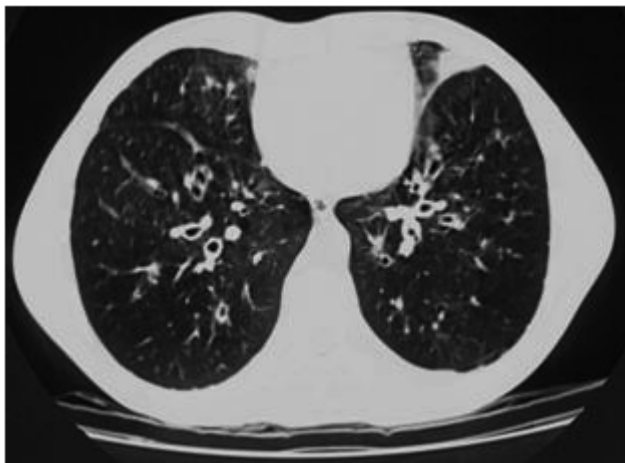
Which of the following statements regarding lung cancer screening is true?

- A. Lung cancer screening has not been shown to be effective for reducing mortality in any patient population.
- B. This patient should be evaluated with an annual chest radiograph.
- C. This patient should start annual low-dose CT screening for lung cancer.
- D. Sputum cytology has been proven to be an effective method for lung cancer screening.

131.

A 43-year-old male presents to your office due to coughing. He has a history of asthma for which he is prescribed high-dose inhaled corticosteroids and a long-acting beta-agonist, along with a leukotriene inhibitor. His adherence and technique are perfect. He still has symptoms of cough, wheezing, and chest tightness that bother him most days and nights each week. He is using albuterol daily. The symptoms persist when he goes on vacation out of state. He works in an office setting.

Sputum culture is negative. IgE level is 3,600 ng/mL. His primary doctor obtained a chest CT:



What should be the next step?

- A. Repeat spirometry in 1–2 weeks.
- B. Start omalizumab injections every 2 weeks.
- C. Sweat chloride testing.
- D. Skin testing for reactivity to *Aspergillus fumigatus*.
- E. HIV test.

132.

A 49-year-old female sees you in the office as part of a hospital discharge follow-up. She was admitted with symptoms of chest pain and shortness of breath and was diagnosed with a pulmonary embolism by chest CT angiogram. She had a total knee replacement 4 weeks prior and then developed her symptoms about 2 weeks after the surgery. She had been engaged in rehabilitation and thinks she received injections in her abdomen during her post-op course in the hospital. While in the hospital, a hypercoagulability panel was ordered. All tests were negative except that she was found to be positive for lupus anticoagulant. She was initially treated with low-molecular-weight heparin and then discharged on warfarin.

How long should she be treated with warfarin?

- A. Indefinitely
 - B. 3 months
 - C. 6 months
 - D. 36 months
-

133.

A 63-year-old female was admitted to the hospital and diagnosed with a pulmonary embolism by chest CT angiogram. Venous Doppler ultrasound has been ordered but won't be completed until the morning. Initial vitals include P 115, BP 100/70, RR 18, oxygen saturations of 94% on 3 L. Exam revealed clear lung auscultation, distended neck veins, regular tachycardia, and absence of leg swelling. She is started on heparin infusion. Labs reveal BNP of 1,300 and troponin levels that are negative.

You are called by the nurse 6 hours later with a repeat set of vital signs, which are: HR 120, BP 90/60, RR 24, oxygen saturations of 93% on 4 L. Her exam is otherwise unchanged. PTT levels have consistently been 60–80. You ask for an echocardiogram to be ordered, but this will not occur for at least 2–3 hours.

Which of the following is the next best step in management?

- A. Request an IVC filter be placed.
 - B. Intubate and place her on mechanical ventilation.
 - C. Continue to monitor.
 - D. Give a bolus of 10 mg t-PA intravenously, then 90 mg over 2 hours.
 - E. Request surgical evaluation for thrombectomy.
-

CARDIOLOGY

134.

A 45-year-old man being evaluated for ischemic heart disease has had chest pain with exertion for about 5 months and finally came to see you this week for evaluation. He says the pain occurs only with exertion and is a pressure-like feeling in his chest. The pain does not radiate, and he has no sweating or shortness of breath with the pain. The pain mainly occurs when he is running on his treadmill, although lately he has had chest pain occur while having sexual intercourse. Pain subsides after resting for a few minutes. He does not have any chest pain except with exertion and has never had pain at rest.

PAST MEDICAL HISTORY: Hypertension for 4 years treated with fosinopril 20 mg q day
Hernia repair 10 years ago

SOCIAL HISTORY: Lives with his wife of 2 years; his 3rd marriage
Works as a librarian by day; bartender by night
No children
Doesn't smoke or drink

FAMILY HISTORY: Father 70; s/p CABG at age 60
Mother 70; Alzheimer disease
Brother 50; angioplasty a year ago for left main coronary artery disease

REVIEW OF SYSTEMS: Negative for any other symptoms

PHYSICAL EXAMINATION: Ht 5' 10", Wt 180, BP 120/70, P 85, RR 14, Temp 98.8° F
HEENT: PERRLA, EOMI
 TMs clear
 Throat clear
Neck: Supple; no thyromegaly
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present; no masses; no hepatosplenomegaly
Extremities: No cyanosis; clubbing, or edema
Rectal: Heme-negative; no masses

LABORATORY: Normal for age

You decide to perform an exercise stress test on him.

Which of the following should make you stop the test urgently?

- A. Sinus tachycardia of 130 bpm
- B. ST-segment depression of 1.5 mm
- C. Mild cramping in his left calf
- D. Decrease in systolic BP > 15 mmHg
- E. Respiratory rate of 30

135.

A 70-year-old man has been having recurring episodes of dizziness over the last several months. You admit him to the hospital because of a fainting spell that occurred earlier today. Initial laboratory and ECG are normal. There is no evidence of acute myocardial infarction by history or laboratory. He says that he notices the dizzy spells, and that is about it. He has no prodrome and no other symptoms with them. This fainting spell is the first one that he has had. He was not aware that it was about to happen.

PAST MEDICAL HISTORY: Prostatic hypertrophy diagnosed 5 years ago
Colon polyp removed 3 years ago

MEDS: ECASA qd
Nifedipine 30 mg qd

SOCIAL HISTORY: Former logger, retired for 20 years
Lives with 4th wife
Chews tobacco for 60 years
Doesn't smoke
Drinks a beer every now and then; none in 6 weeks

FAMILY HISTORY: "Outlived everyone in my family"
Mother died at age 67 of stroke
Father died at age 50 of MI
Brother died at age 60 of stroke
Sister died at age 60 of MI
Son died at age 30 of motor vehicle accident

REVIEW OF SYSTEMS: Negative

PHYSICAL EXAMINATION: Well-developed, well-nourished man in no distress
Ht 6' 1", Wt 190 (unchanged in 2 years), BP 120/70, RR 18, P 76 regular, T 97.9° F
HEENT: PERRLA, EOMI, Discs sharp
TMs: Clear
Throat: Clear
Neck: Supple
Heart: RRR with II/VI systolic murmur heard for 20 years
Lungs: CTA
Abdomen: Bowel sounds present; no masses; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema
Rectal: No masses; heme-negative

LABORATORY: CBC normal
Electrolytes normal
ESR 12
Thyroid function tests normal

The next morning, when the nurse's aide comes in to take vitals, he tells her that 5 minutes ago he had another dizzy spell. She notifies the nurse who is on her coffee break. The charge nurse comes in and looks at the monitor and sees that he is in Normal Sinus rhythm. You come in on rounds and he relates this story to you.

You go back and look at the rhythm strip from the approximate time this event happened. You note absent QRS complexes every third beat. The PR interval is slightly prolonged **but** is constant from beat to beat. P waves are present at regular intervals.

Which of the following is the most appropriate action to take at this point?

- A. Administration of atropine, one-time dose 2 mg IV.
- B. Administration of isoproterenol at a constant infusion rate 2 mg/min.
- C. Insertion of a permanent cardiac pacemaker.
- D. This is a benign arrhythmia; therefore, no specific therapy is indicated.

136.

A 25-year-old man has had recent syncope that appears to be exercise-induced. He has developed progressive shortness of breath for the past few days and increasing pedal edema. He tried increasing his usual dose of furosemide without relief.

PAST MEDICAL HISTORY: Hypertension for 5 years; currently on nifedipine 30 mg qd and furosemide 20 mg qd

SOCIAL HISTORY: Lives alone in a trailer
Drinks 2 six-packs/beer a week
Smokes 1/2 pack a day of cigarettes; occasional cigar

PHYSICAL EXAMINATION: Well-developed, well-nourished man in mild distress
BP 160/80, P 80, RR 18, Temp 98.4° F
HEENT: PERRLA, EOMI, bilateral cataracts (mild)
TMs clear
Throat clear
Neck: Supple, +JVD to 8 cm
Heart: RRR with III/VI harsh systolic murmur
Lungs: Bilateral crackles to mid-lung fields
Abdomen: Bowel sounds present; no fluid wave; liver down about 5 cm below right costal margin
Extremities: No cyanosis; mild clubbing present; 3+ pitting edema to knee
GU: Mild scrotal edema

LABORATORY: Echocardiogram: Disproportionately thickened ventricular septum and systolic anterior motion of the mitral valve

Based on your findings, which of the following is likely to be present?

- A. Delayed carotid upstroke
- B. Radiation of the murmur to the carotids
- C. Decrease of the murmur with handgrip
- D. Signs of mitral stenosis
- E. Reduced left ventricular ejection fraction

137.

A 35-year-old Caucasian male living in northern Louisiana has been having sharp, pleuritic chest pains that are relieved by sitting upright. He has reported some fever for several days and a nonproductive cough.

PAST MEDICAL HISTORY: Essentially negative; came in 3 years ago for URI

SOCIAL HISTORY: Works as a policeman
Doesn't smoke
Drinks 2 beers on the weekends when he plays poker with his buddies

FAMILY HISTORY: Mother with depression
Wife is a manic-depressive and steals things all the time from local department stores

REVIEW OF SYSTEMS: No weight loss
No chills
No nausea or vomiting

PHYSICAL EXAMINATION: Ht: 6' 1", Wt 190 (very muscular), BP 120/70, RR 10 and splinting, P 110, T 100.5° F

HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple; no meningismus
Heart: RRR without murmurs and gallops
Lungs: CTA
Abdomen: +BS, soft, no organomegaly
Extremities: No cyanosis, clubbing, or edema
Skin: No rashes

Which of the following findings would least support a diagnosis of acute pericarditis?

- A. Frequent atrial premature beats
 - B. A pericardial rub is not present
 - C. Diffuse T-wave inversion with ST-segment elevation
 - D. PR-segment depression, especially in lead II
 - E. Serum creatine phosphokinase concentrations of 2x normal
-

138.

A 17-year-old woman with diagnosis of coarctation of the aorta by a local cardiologist is following up with you for further treatment. She has not had menses yet. Otherwise, she is healthy and did not have any problems until her family noted that she was not growing properly.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Lives with mom and dad in an apartment
A senior in high school
Denies smoking or drinking

FAMILY HISTORY:	Grandfather with hypertension Grandmother with hypothyroidism
REVIEW OF SYSTEMS:	No menses
PHYSICAL EXAMINATION:	BP 110/70 upper extremities; 80/50 lower extremities; P 90; RR 18; Temp 98.6° F
HEENT:	PERRLA, EOMI TMs clear; low-set ears Low posterior hairline High-arched palate
Neck:	Marked webbing of the neck
Heart:	RRR without murmurs, rubs, or gallops
Lungs:	CTA
Abdomen:	Bowel sounds present, no hepatosplenomegaly
Extremities:	Short digits; no cyanosis or clubbing; hands look edematous
GU:	Minimal breast development Normal external genitalia No secondary hair development

Which of the following other cardiac abnormalities is associated with the presence of her coarctation of the aorta?

- A. Bicuspid aortic valve
- B. Mitral stenosis
- C. Patent ductus arteriosus
- D. Sinus venosus
- E. Ventricular septal defect

139.

You are seeing a new patient who is a 65-year-old man with a history of poorly controlled hypertension. Three months ago, he developed shortness of breath, increased fatigue, and two-pillow orthopnea. Last month while he was traveling in Eureka Springs, Arkansas, he consulted a physician about these symptoms and was started on digoxin (0.25 mg/day), hydrochlorothiazide (50 mg/day), and potassium supplementation. At that time, he weighed 190 lbs with a blood pressure of 150/80 mmHg. He said his doctor said something about “JVD” of 4 cm. He had swelling of his ankles at that time also. An ECG from the visit 1 month ago showed left ventricular hypertrophy. CXR at that time showed cardiomegaly without effusion. Routine lab then showed BUN of 28 mg/dL and serum creatinine of 1.4 mg/dL.

PAST MEDICAL HISTORY:	Poorly controlled hypertension
SOCIAL HISTORY:	Lives with wife and dog Smokes 1/2 pack/day of cigarettes Drinks 1 beer a week
FAMILY HISTORY:	Father died of MI at age 67 Mother died of MI at age 66
REVIEW OF SYSTEMS:	No fever Morning cough—clears with persistent coughing Weight loss of 7 pounds Still fatigued but a little better

PHYSICAL EXAMINATION: BP 130/79, P 96, RR 18, Temp 99° F, Weight 183 lbs
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple; neck veins flat; no JVD
Heart: RRR without murmurs, rubs, with an S₃ gallop
Lungs: Few scattered crackles in bases
Abdomen: Bowel sounds present; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema

Laboratory: BUN 45 mg/dL
Serum creatinine 1.6 mg/dL
Serum sodium 136 mEq/L
Serum potassium 3.6 mEq/L
Serum digoxin 1.8 ng/mL (therapeutic 1.0–2.0)

Which of the following is the best course to take at this time?

- A. Add nothing at this point and follow up in 1 month.
- B. Increase digoxin dose.
- C. Add an ACE inhibitor.
- D. Change hydrochlorothiazide to furosemide.
- E. Add calcium channel blocker.

140.

A 67-year-old man is seen in follow-up after an anterior myocardial infarction. He is doing well and has no complaints.

PAST MEDICAL HISTORY: Negative before the MI

MEDICATIONS: ECASA one qd
Propranolol 40 mg PO tid
Isosorbide dinitrate 20 mg tid

SOCIAL HISTORY: Retired history professor
Lives with wife
Has never smoked cigarettes
Drinks occasional beer on weekend

FAMILY HISTORY: Unknown; adopted

REVIEW OF SYSTEMS: Unremarkable

PHYSICAL EXAMINATION: BP 120/70, RR 18, P 42, Temp 98.3° F
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple, no JVD
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA

Abdomen: Bowel sounds present, no masses
 Extremities: No cyanosis, clubbing, trace pedal edema

Which of the following is the next best step in his management?

- A. Order thyroid function tests.
 - B. Schedule for electrophysiologic testing.
 - C. Decrease the propranolol dose.
 - D. Insert temporary pacemaker.
 - E. Discontinue aspirin therapy.
-

141.

A dentist calls regarding a patient with a bioprosthetic mitral valve. She wants to know if any dental procedures done on this patient will require prophylaxis.

For this patient, which one of the following dental procedures requires prophylaxis for infective endocarditis?

- A. Orthodontic appliance adjustment
 - B. Initial placement of orthodontic bands
 - C. Suture removal
 - D. Impressions
 - E. Placement of removable orthodontic appliances
-

142.

A 60-year-old man is about to undergo a cystoscopy and has a prosthetic valve. He is not allergic to any medications.

Which of the following antibiotic(s) is/are appropriate for infective endocarditis prophylaxis?

- A. Ampicillin 2 grams IM or IV plus gentamicin 1.5 mg/kg
 - B. Vancomycin 1 gm IV over 1–2 hours plus gentamicin 1.5 mg/kg
 - C. Amoxicillin alone 2 grams PO 1 hour before procedure is sufficient
 - D. Vancomycin alone 1 gram IV over 1–2 hours
 - E. None of the choices is correct
-

143.

Your next patient is the shipping agent at your local Gigantic Falcon Food Store, where he works a vigorous 60-hour week. He will consume 24 packs of unfiltered cigarettes during such a week and, indeed, you have already recognized his developing (emphysematous) chronic obstructive pulmonary disease (COPD). He has mentioned to you that if he tries to walk with any vigor, he develops squeezing calf pain that interrupts his exercise. His BP has inched up to 152/94 mmHg despite efforts at both weight loss and reduced salt intake.

You are now seeing him in the office for what you feel sure is exertional angina pectoris. You order a stress exercise evaluation that confirms an apparent ischemic response. The patient declines your suggestion of diagnostic coronary catheterization, and you now contemplate empiric therapy.

You will select sublingual nitrates, daily aspirin, and which of the following?

- A. Enalapril maleate
 - B. Atenolol
 - C. Pindolol
 - D. Propranolol HCl
 - E. Losartan K⁺
-

144.

A 41-year-old used car salesman comes to see you in the emergency department after developing one of his “spells,” during which his heart feels as if it will “jump out of (his) chest.” These episodes begin abruptly, particularly if he doubles his normal daily caffeine intake (which usually consists of 3 cups of coffee and 2–3 cans of cola). He is concerned that he will pass out with today’s episode, although he has never done so before.

You quickly establish that the patient’s HR is 150/min and supine BP 110/70 mmHg, and the patient is placed on a monitor, which confirms the presence of a “wide complex tachycardia.”

A 12-lead ECG is obtained **during tachycardia** and reveals a precisely regular rhythm without discernible P waves, QRS-duration of 185 milliseconds, a mean electrical QRS axis of -110° in the frontal plane (toward the patient’s right shoulder), and a rather monomorphic QRS configuration with large dominant R waves in V1.

You would surmise which of the following?

- A. A calcium antagonist given intravenously (IV) **cannot** be selected safely as the initial treatment.
 - B. This could **not** be ventricular tachycardia with the apparent preservation of hemodynamic stability.
 - C. This could **not** be antidromic WPW because the QRS complexes are too wide.
 - D. The patient **must** be cardioverted emergently.
 - E. Either digitalis or adenosine IV **may** be given with impunity as the drugs most likely to convert the tachycardia.
-

145.

A 52-year-old CEO sits down for dinner with his family but is reluctant to eat because of an overpowering feeling of “indigestion.” As a registered nurse, his wife is insistent on a 911 call, and the patient is transported to your emergency department. His BP is 90/70 mmHg, HR 50/min, and his general appearance is characterized by sweating and ashen pallor.

The ECG shows 2–3 mm ST-segment elevation in leads II, III, and aVF accompanied by “hyperacute” (tall peaked) T waves but no Q waves at this point.

Which of the gentleman’s coronary arteries listed below is likely occluded?

- A. Left anterior descending (LAD)
 - B. Diagonal branch of the LAD
 - C. Left circumflex (LCX)
 - D. Right coronary artery (RCA)
 - E. Right ventricular branch of the RCA
-

146.

A 27-year-old used car salesman presents with his latest episode of palpitations and rapid heart action. He relates countless such episodes since his late teens and 1 episode of syncope. He felt as if he would lose consciousness with today's episode, but did not. You confirm a heart rate of nearly 220/min and succeed in obtaining a 12-lead ECG **during tachycardia** showing **no** R-R interval variability, narrow QRS complexes (100 msec), and discernible P waves hidden in the succeeding ST segments with a QP interval of 110 msec. The patient produces a previous routine tracing from his billfold; it reveals a PR interval of 0.07 sec (70 msec) and slurred sluggish upstrokes as the initial portion of the QRS complexes in multiple leads.

Your best diagnosis is which of the following?

- A. First-degree AV block with Mobitz 1 progression (Wenckebach's)
 - B. WPW with orthodromic tachycardia (AVRT)
 - C. AV nodal re-entrant tachycardia (AVNRT)
 - D. Multifocal atrial tachycardia (MAT)
-

147.

Your next new patient admitted to your team on the Inpatient Service is a 62-year-old man who has suffered from congestive heart failure for the last 7 years. He has attempted to take his medications faithfully, but the complexity of his regimen and his failing eyesight have sometimes resulted in inadvertent errors. In the emergency department, he is noted to have a narrow complex tachycardia at a rate of 88/min with apparent retrograde P waves hidden in the ST segments. You recognize non-paroxysmal junctional tachycardia (NPJT) and understand this rhythm to reflect a nonspecific acceleration (to within the range of 70–130/min) of what would otherwise represent the normal rate range of the junctional tissues (40–60/min) in a resting adult.

The best descriptor for this known mechanism of arrhythmia is which of the following?

- A. Reentry
 - B. Early after-depolarizations
 - C. Enhanced automaticity
 - D. Delayed after-depolarizations
 - E. Atrio-ventricular bypass (via a congenital anomalous pathway)
-

148.

You are a passenger on an Antarctic cruise. You have just attended a grand soirée in the main dining room, and you and your spouse have walked up to the front deck to catch a breath of fresh air. Immediately ahead of the mighty ship looms a towering white mass. The ship is slowly turning to the left, but strikes what is obviously an iceberg. A large chunk of ice breaks off and falls onto the chest of a young woman who is standing nearby. She crumples to the deck and you rush to assist her. One of the ship's crew runs over to help you, and together you move her unconscious form to Captain Smith's cabin. The ship's surgeon arrives moments later.

He is immediately concerned upon palpating the woman's pulse. It seems that her blood pressure is very low. The surgeon examines her chest and notes a large mid-sternal hematoma. He palpates her sternum and tells you that it is obviously fractured. You, being the observant person you are, point out her extremely distended neck veins. The surgeon examines the neck closely and remarks about the single collapse of the veins during each heartbeat. He pulls out his stethoscope and listens to her heart and lungs. Captain Smith enters the cabin to inquire about the young lady's condition. He assures you that his initial impression is that the ship has received only minor damage from the collision.

You continue to observe the actions of the surgeon. Which of the following is he most likely to do next?

- A. Call for the ship's chaplain to read the last rites to her.
 - B. Insert a large trocar through her left lateral chest wall.
 - C. Insert a long, large-bore needle into her left chest toward her cardiac apex.
 - D. Apply rotating tourniquets to her arms and legs.
 - E. Apply a tight wrap to her chest to stabilize the sternum.
-

149.

Which of the following cardiac conditions tolerates exercise well?

- A. Aortic regurgitation
 - B. Aortic stenosis
 - C. Mitral stenosis
 - D. Hypertrophic cardiomyopathy
 - E. Eisenmenger syndrome
-

150.

A 60-year-old man with recent inferior myocardial infarction is 1-day status post his infarction and has been doing well. This afternoon, however, he develops recurrence of his chest pain. You quickly get him to the cath lab, and there he has a markedly decreased cardiac output, as well as decreased PCWP of 10. His RA pressure is elevated at 15 with a PA pressure of 20/11. He continues to deteriorate and becomes more hypotensive with a BP of 75/50.

Based on these findings, which of the following describes what has happened and how you should treat him?

- A. Pericardial tamponade; perform emergent pericardial tap.
 - B. RV infarction with secondary failure; administer normal saline.
 - C. Biventricular failure; give diuretics, preload and afterload reducers, and inotropic agents.
 - D. Mitral stenosis with secondary RV failure; refer for valvuloplasty.
 - E. Pulmonary hypertension; oxygen.
-

151.

A 30-year-old graduate student is brought in by ambulance to the emergency department, clutching his chest and looking very ill. He denies any prior medical history and says this has never happened before. The symptoms began at home while watching reruns of his favorite television show, "Breaking Bad."

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Lives with his two brothers
Works as a television repairman when he is not in graduate school
Stopped smoking 10 years ago; before that, 1/2 ppd for 10 years
Drinks martinis daily (1/day)

FAMILY HISTORY: Father age 60 with MI 3 years ago
Mother age 59 with MI 2 years ago
Uncle died at age 30 of "blood clot" to lung

Aunt died at age 35 of “blood clot” to brain
Two brothers are healthy

REVIEW OF SYSTEMS: Essentially unremarkable

PHYSICAL EXAMINATION: Ht 5' 10", Wt 190, BP 90/40, Pulse irregular and 100 to 150, RR 24, afebrile

HEENT: PERRLA, EOMI

TMs clear

Throat clear

Neck: Supple, no thyromegaly

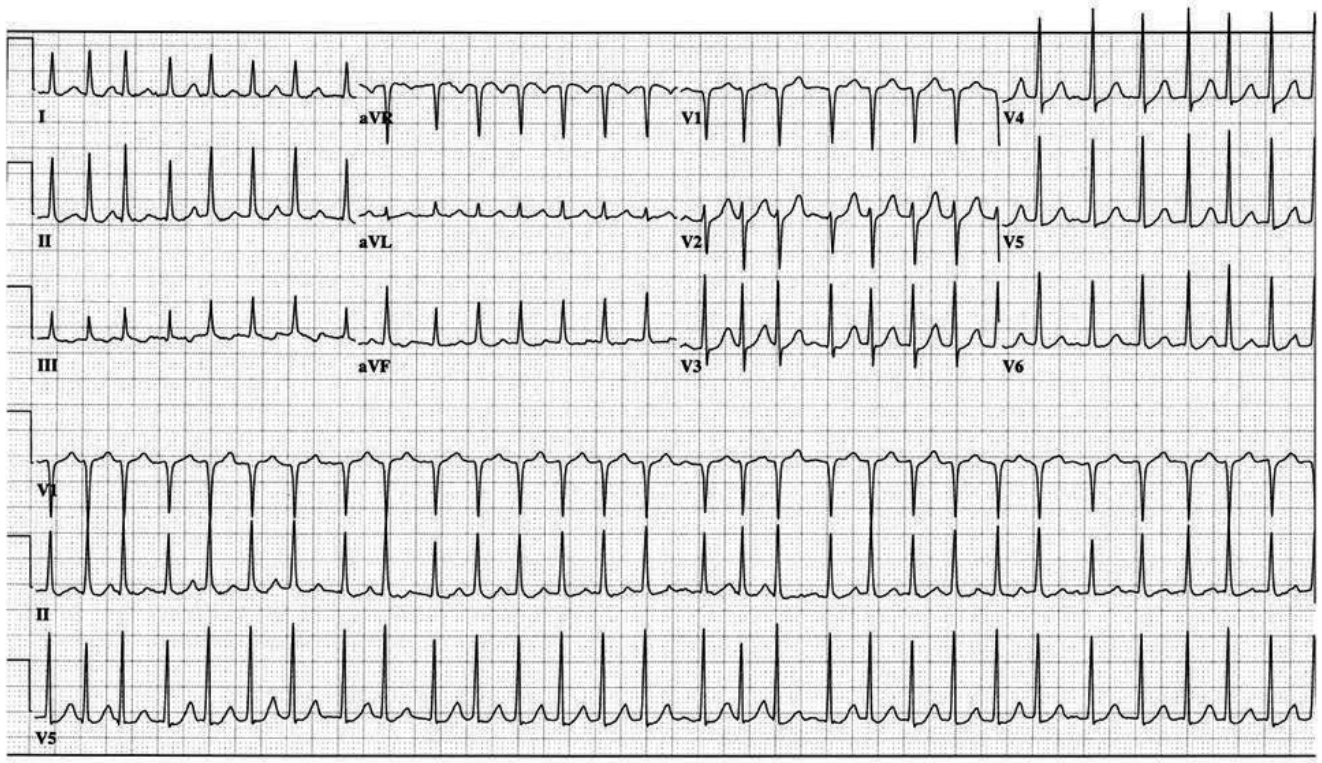
Heart: Irregular without murmurs, rubs, or gallops

Lungs: CTA

Abdomen: Bowel sounds present; no masses palpated

Extremities: No cyanosis, clubbing, or edema

An ECG is obtained in the emergency department and is shown below:



Which of the following is the correct interpretation of the arrhythmia that he is suffering from at the moment?

- A. Sinus arrhythmia
- B. Ventricular tachycardia
- C. Atrial flutter
- D. Atrial fibrillation
- E. Sick sinus syndrome

152.

A 55-year-old man collapses while playing tennis and is brought to the emergency department. The EMTs found him in cardiopulmonary arrest, performed CPR, applied a 200-joule shock to his chest, and inserted an endotracheal tube and IV. He has been bagged, and chest compressions continued on the way to the emergency department. At the time you see him, you get a rhythm strip that shows ventricular tachycardia. He has received epinephrine 1 mg IV push.

Which of the following antiarrhythmics would be reasonable to administer now?

- A. Bretylium tosylate
 - B. Phenytoin
 - C. Sodium bicarbonate
 - D. Procainamide
 - E. Amiodarone
-

153.

A 50-year-old woman comes in for her routine checkup. She has not had any problems and relates that she is doing well, except she says that her feet swell frequently and that this has just started to occur.

PAST MEDICAL HISTORY: Essentially negative; delivered 3 children by normal, spontaneous vaginal delivery at 28, 30, and 35 years ago

MEDS: “Menopause pill”

SOCIAL HISTORY: Lives with her husband and son age 35
Drinks a 6-pack of beer/week
Smokes 2 packs/cigarettes daily
Works as a weather forecaster

FAMILY HISTORY: Mother with CHF diagnosed at age 50
Father with CHF diagnosed at age 50
Brother age 51, good health

REVIEW OF SYSTEMS: No shortness of breath
Chronic cough especially in the morning for years
No edema of the hands or elsewhere noted
No orthopnea
No dyspnea on exertion or at rest
No weight gain or weight loss

PHYSICAL EXAMINATION: Ht 5' 5", Wt 120, BP 110/80, Temp 98° F, RR 12, P 88

HEENT: PERRLA, EOMI Discs sharp
TMs clear
Throat clear

Neck: Supple, no masses
Jugular venous pulse is 3 cm H₂O
Hepatojugular reflux is negative

Heart: RRR without murmurs, rubs, or gallops

Lungs: CTA
 Abdomen: Bowel sounds present; no ascites; no masses
 Extremities: 2+ pitting edema to just past the ankle area bilaterally
 No cyanosis, clubbing noted

Which of the following should not be considered in the differential?

- A. Right heart failure
- B. Pelvic thrombophlebitis
- C. Venous varicosities
- D. Cyclic edema
- E. Hypoalbuminemia

154.

An 18-year-old man lives on a military base in Germany and presents to you with a fever (102.2° F) and complains of lower back, knee, and left wrist pain. The pain is not localized to any one joint. He had a severe sore throat about 3 weeks ago for which he did not seek treatment.

PAST MEDICAL HISTORY: Up-to-date on all his immunizations, including anthrax and yellow fever
 Treated for syphilis on arrival to base 8 months ago

SOCIAL HISTORY: Works as a dishwasher in the mess hall
 Smokes 1 pack/day of cigarettes
 Drinks 6-pack of beer nightly

FAMILY HISTORY: Negative

REVIEW OF SYSTEMS: Negative except for above

PHYSICAL EXAMINATION: Ht 6', Wt 220, BP 120/50, Temp 102° F, P 99, RR 18
 HEENT: PERRLA, EOMI, discs sharp
 TMs clear
 Throat now clear
 Neck: Supple; no masses
 Heart: RRR without murmurs, rubs, or gallops
 Lungs: CTA
 Abdomen: Bowel sounds present, no masses, no hepatosplenomegaly
 Extremities: Multiple swellings noted on his elbows and wrists; each approximately 0.5 cm
 Skin: 2 erythematous pinkish areas on the anterior trunk, each about 4–6 cm in diameter

LABORATORY: CBC normal
 Blood cultures negative
 Throat culture negative
 ESR 93
 ASO (antistreptolysin-O) titer is elevated

Based on your working diagnosis, which of the following therapeutic interventions should you order at this point?

- A. Parenteral penicillin and steroids
 - B. Parenteral penicillin and aspirin
 - C. Parenteral penicillin and aspirin and steroids
 - D. Supportive care only
 - E. Aspirin only
-

155.

A 27-year-old Caucasian male who lives in Jackson, MS, presents to his local emergency department complaining of dizziness over the past few days. However, he reports that over the past 4 days he has had 3 episodes of syncope followed by periods of unresponsiveness! He has always been in excellent health and is a personal trainer to the “stars” of Jackson. His last illness was about 4–5 months ago when he developed fever, chills, and generalized weakness while he was spending a month as a guest personal trainer in a spa off of Long Island, NY.

PAST MEDICAL HISTORY: Negative except for above
 Denies use of steroids; says he is “natural”

SOCIAL HISTORY: Lives with wife of 3 years; she is a plastic surgeon in town
 Doesn’t smoke
 Doesn’t drink alcohol
 Denies drug use

FAMILY HISTORY: Father 60, HTN
 Mother 55, HTN
 Brother 32, obesity

REVIEW OF SYSTEMS: Essentially negative

PHYSICAL EXAMINATION: Ht; 5' 8", 230 lbs, BP 110/80, P 30, RR 18, Temp 98.6° F
 HEENT: PERRLA, EOMI
 TMs clear
 Throat clear
 Neck: Supple
 Heart: RRR with severe bradycardia
 Lungs: CTA
 Abdomen: Bowel sounds present; abs of steel; no rebound;
 no hepatosplenomegaly
 Extremities: No cyanosis, clubbing, or edema
 GU: Normal male genitalia; rectal heme-negative

LABORATORY: CXR normal
 Serum chemistries normal

ECG: Complete heart block with nonspecific ST- and T-wave changes; no findings consistent with prior myocardial infarction
Emergency department (did a drug screen): + for cocaine

Which of the following is the most likely cause of his complete heart block?

- A. Infection transmitted by a bite from a tick
- B. Infection caused by HIV
- C. Myocardial infarction from cocaine use
- D. Myocardial infarction from coronary artery embolus
- E. Infection transmitted by a bite from a louse

156.

A 60-year-old man with negative past medical history presents for his annual physical examination. He reports no problems.

PAST MEDICAL HISTORY: Really, really negative!

SOCIAL HISTORY: Works as a minister in local community church
Not married
Doesn't smoke
Doesn't drink

FAMILY HISTORY: Father died at age 78 of MI
Mother died at age 55 of MI

REVIEW OF SYSTEMS: Negative

PHYSICAL EXAMINATION: BP 130/76, P 110, RR 18, Temp 99° F
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present, no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema

LABORATORY: CBC normal; no anemia
Lytes normal
ECG: 12 lead tracing; shows 2 premature ventricular complexes (PVCs)

Which of the following statements about premature ventricular complexes is true?

- A. Less than 40% of males have PVCs on a 24-hour Holter monitor.
- B. PVCs such as these can cause symptoms.
- C. His PVCs predict a higher incidence of cardiac mortality.
- D. The frequency and nature of PVCs cannot be correlated with increased mortality in patients with known coronary artery disease.
- E. The frequency of isolated PVCs decreases with age.

157.

You are asked to evaluate a 76-year-old woman admitted to the orthopedic service for a left hip fracture after suffering a fall earlier this morning. She was getting up to go to the bathroom early this morning and says that she “just passed out.”

PAST MEDICAL HISTORY: Hypertension for 30 years, for which she is taking:
 Low-dose atenolol 25 mg qd
 Thiazide 25 mg qd
 Diltiazem long-acting 240 mg qd

SOCIAL HISTORY: Never married
 Lives alone in 40-room mansion, the “Perkins’ House”
 Smokes 2 packs/day of cigarettes; doesn’t drink alcohol

REVIEW OF SYSTEMS: Dizziness has been going on for several weeks
 No syncope before this episode
 Some paraesthesias of her fingers
 Headaches on occasion
 Tongue “itchy”
 Eyes watery
 Throat scratchy
 Neck “swells” up
 Palpitations all the time
 Dyspnea on occasion at rest and at exertion
 Taste different now; has metallic taste
 Abdominal pains every day ... sharp like a knife, move around a lot
 Leg cramps all the time
 Skin itches a lot
 Increased forgetfulness
 Hair loss noted on forearms

PHYSICAL EXAMINATION: BP 90/50, HR 42, Temp 98.5° F, RR 18
 Well-developed, well-nourished woman in mild distress
 HEENT: PERRLA, EOMI
 Discs sharp
 TMs occluded by cerumen
 Throat clear
 Neck: Supple, no thyromegaly or masses
 No bruits
 Heart: RRR without murmurs, rubs, or gallops, but bradycardic
 Lungs: CTA
 Abdomen: Bowel sounds present, no hepatosplenomegaly, no masses
 Extremities: No cyanosis, clubbing, trace pedal edema
 GU/Rectal: Heme-negative stool, no masses; normal female external genitalia

LABORATORY: ECG: Sinus bradycardia at 45 bpm; occasional sinus pauses lasting 3 seconds; no ST-T wave changes; no Q waves or other abnormalities; axis is normal

Which of the following would be the best next step in treatment for her arrhythmia at this point?

- A. Placement of a permanent pacing wire.
- B. Placement of a temporary pacing wire, and stop her diltiazem and atenolol.
- C. Stop diltiazem and atenolol and observe.
- D. Place temporary pacer now and schedule for permanent placement with her hip repair.
- E. Give atropine q hour until heart rate returns to normal; stop atenolol and diltiazem.

158.

A 17-year-old high school student is referred by his basketball coach to you for a physical examination. He is healthy and has no complaints.

PAST MEDICAL HISTORY: No immunizations since age 12 (had Td booster then); has received 2 MMRs; no hepatitis B vaccination

SOCIAL HISTORY: A/B honor roll student
Works afternoons at the movie theater; runs the popcorn machine
Sleeps about 4 hours a night after getting all his homework done
Doesn't smoke or drink
Is sexually active with girls; always wears a condom
Wears seatbelts

FAMILY HISTORY: Mother 44, healthy
Father 44, healthy
Brother 16, healthy
Brother, died suddenly while playing basketball at age 19; no autopsy obtained
Sister 15, healthy

REVIEW OF SYSTEMS: Negative

PHYSICAL EXAMINATION: 6' 3", 210 lbs
BP 120/70, P 65, RR 18, Temp 98.5° F
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple; no murmurs heard in neck
Brisk carotid upstroke
Heart: RRR with III/VI harsh systolic murmur
Murmur increased with Valsalva
Murmur decreased with passive leg-raising
Lungs: CTA
Abdomen: Bowel sounds present; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema
GU: Tanner V pattern hair growth and gonadal development
Skin: Acne on face and back

Based on your findings in the history and physical examination, which of the following is your most likely diagnosis?

- A. Anomalous coronary artery disease
 - B. Severe mitral stenosis
 - C. Constrictive pericarditis
 - D. Upper arch aortic aneurysm
 - E. Hypertrophic cardiomyopathy (idiopathic hypertrophic subaortic stenosis)
-

159.

A 16-year-old high school student is referred by his wrestling coach to you for a physical examination. He is healthy and has no complaints.

PAST MEDICAL HISTORY: No immunizations since age 12 (had Td booster then); has received 2 MMRs; doesn't know about hepatitis B vaccination

SOCIAL HISTORY: C student
Sleeps about 10 hours a night
Smokes marijuana on occasion
Smokes a cigarette on occasion
Drinks beer on occasion
Is not sexually active
Doesn't wear seat belts

FAMILY HISTORY: Mother 44, healthy
Father 44, healthy
Brother 16, healthy
Brother, died suddenly while skiing at age 17; no autopsy obtained

REVIEW OF SYSTEMS: Negative

PHYSICAL EXAMINATION 5' 1", 250 lbs
BP 130/70, P 72, RR 18, Temp 98.7° F
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple; no murmurs heard in neck
Brisk carotid upstroke
Heart: RRR with III/VI harsh systolic murmur
Murmur increased with standing
Murmur decreased with squatting
Lungs: CTA
Abdomen: Bowel sounds present; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema
GU: Tanner IV pattern hair growth and gonadal development
Skin: Acne on face and back

Which of the following diagnostic tests will confirm your diagnosis?

- A. Treadmill stress test
- B. Echocardiogram
- C. Doppler ultrasound of his scrotum
- D. Holter monitor
- E. ECG

160.

A 30-year-old man presents to the emergency department with 18 hours of left precordial pain that is worse when lying supine and relieved when sitting upright. He is afraid he is having a heart attack because his grandma (age 92) died last week of an MI. He had a viral illness about a week ago.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Works as a psychic on the psychic hot line
Married with children
Doesn't smoke or drink

FAMILY HISTORY: Grandma, mentioned above, died at age 92 of MI
Grandpa died at age 92 of stroke
Father age 65 and mother age 70, alive and well

REVIEW OF SYSTEMS: Low-grade fevers
Occasional cough
He says his psychic abilities have been diminished the last 2 days

PHYSICAL EXAMINATION: BP 130/70, P 110, RR 20, Temp 99.5° F
HEENT: PERRLA, EOMI
Throat: Slight erythema
Neck: Supple, no masses; no bruits
Heart: RRR with faint friction rub when he leans forward
Lungs: CTA
Abdomen: +BS; no masses; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema

LABORATORY: ECG reveals diffuse concave-up ST elevation with sinus tachycardia

Your likely next steps would include all of the following except:

- A. Thrombolytics for treatment of an acute MI
- B. Nonsteroidal antiinflammatory agents
- C. Supplemental oxygen by mask or nasal cannula
- D. Admission for serial ECGs and observation
- E. Echocardiogram

161.

A 24-year-old woman presents to your office complaining of palpitations. These occur most often when she drinks coffee. She has never had syncope. The palpitations can last up to 3–5 minutes and spontaneously resolve.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Works as a cross-country truck driver
Married with 1 child
Smokes 2 packs/day of cigarettes
Drinks a fifth of vodka on the weekends

FAMILY HISTORY: Mother 60 with HTN
Father 50 with HTN

REVIEW OF SYSTEMS: Negative

PHYSICAL EXAMINATION: BP 110/70, P 90, RR 16, Temp 98.8° F, Ht 6' 1", Wt 230 lbs

HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Benign
Extremities: No cyanosis, clubbing, or edema
GU: Normal female external genitalia

Which of the following would be the next most useful test in evaluating this patient?

- A. Stress test
- B. Left heart catheterization
- C. Right heart catheterization
- D. Holter study
- E. Echocardiogram

162.

A 45-year-old man with diabetes and severe knee arthritis is referred to you by his rheumatologist. He has chest pain with typical and atypical features for angina. Sometimes the pain is a “pressure” in his mid-chest, but mostly he describes sharp stabbing pain at the right upper sternal border. He denies any lung disease. He cannot walk very far due to his arthritis.

PAST MEDICAL HISTORY: Severe arthritis; takes ibuprofen 800 mg 3 times daily; occasionally has to take narcotic agents to relieve the pain
Diabetes for 10 years—takes insulin 30 U NPH in a.m.

SOCIAL HISTORY:	Lives alone in an apartment with modern conveniences Smokes 1/2 pack of cigarettes daily Doesn't drink alcohol
FAMILY HISTORY:	Father 70 with HTN Mother died at age 72 of stroke Brother 42 with diabetes
REVIEW OF SYSTEMS:	No radiation of pain No shortness of breath with pain No headaches No dyspnea on exertion—but can't walk so difficult to assess
PHYSICAL EXAMINATION:	BP 120/80, RR 20, Temp 98.7° F, P 88
HEENT:	PERRLA, EOMI TMs clear Throat clear; poor dentition
Neck:	Supple
Heart:	RRR without murmurs, rubs, or gallops
Lungs:	CTA
Abdomen:	Benign
Extremities:	Severe osteoarthritis of the knees

Which of the following is the most appropriate next step to evaluate this patient?

- A. Electrophysiologic study.
 - B. Treat the patient for an ulcer because of all the nonsteroidals he is taking.
 - C. Routine stress test.
 - D. Dobutamine stress echo.
 - E. Proceed to left heart catheterization.
-

163.

A 60-year-old man presents with a large anterior myocardial infarction. He is hypotensive and tachycardic. Vital signs are tenuous at best with a BP of 90/50 mmHg and a heart rate of 120. He begins to become unresponsive and appears to be deteriorating on arrival to the emergency department.

Which of the following treatments would not be appropriate?

- A. Placement of an intraaortic balloon pump
 - B. Getting the patient to the cardiac cath lab immediately
 - C. Starting nitroprusside or nitroglycerin IV for afterload reduction
 - D. Placement of a Swan-Ganz catheter to monitor pressures and output
 - E. Starting inotropic agents (dopamine or dobutamine)
-

164.

A 65-year-old man presents for surgical repair of bilateral inguinal hernias that he has had for over 3 years. He denies chest pain or dyspnea on exertion. He says he feels healthy as a horse.

PAST MEDICAL HISTORY: Inferior myocardial infarction 3 months ago
Hypertension for 15 years

MEDICATIONS: Isosorbide dinitrate 20 mg tid
Captopril 25 mg tid
Atenolol 20 mg qd
Enteric-coated aspirin qd

SOCIAL HISTORY: Works as a carhop at a local drive-in
Returned to work 6 weeks after his MI
Rollerskates to work, which is about 3 miles away
Mows his lawn on the weekend
Quit smoking in 1972
2 glasses of red wine once a week

FAMILY HISTORY: Father died of MI at age 70
Mother died of MI at age 67
Brother died of MI at age 56

REVIEW OF SYSTEMS: Negative

PHYSICAL EXAMINATION: BP 120/70, P 60, RR 18, Temp 99.2° F
HEENT: PERRLA, EOMI, developing cataract in left eye
TMs clear
Throat clear
Neck: Supple, no bruit
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present, no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema

LABORATORY: CXR normal
ECG: Q waves in leads II, III, and AVF; otherwise normal

Which of the following is most appropriate at this point?

- A. Proceed to surgery now.
 - B. Approve for surgery now, depending on results of echocardiogram.
 - C. Approve for surgery in 3 months, depending on the results of a radionucleotide stress test.
 - D. Schedule surgery in 3 months, if clinically unchanged.
 - E. Wait 9 months before proceeding to surgery.
-

165.

A 50-year-old woman is referred to you for evaluation of a pulsatile abdominal mass. Her history is remarkable for long-standing hypertension as well as smoking for 30 years (1 pack/day). She has had some mild abdominal pain that brought her initially to her local physician.

PAST MEDICAL HISTORY: Negative as above

SOCIAL HISTORY: Works in Sun City, Arizona, as a transcriptionist (notes she has been more forgetful lately and leaves her transcription equipment in odd places—like the bathroom)
Married with 2 children
Smoking history as above

FAMILY HISTORY: Essentially unremarkable

REVIEW OF SYSTEMS: No intermittent claudication
No peripheral edema
No chronic stasis changes
No fevers
No cough
No chills
No weight loss

PHYSICAL EXAMINATION: BP 120/70, Temp 98.6° F, P 70, RR 18
She is in no acute distress.
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present; there is an ill-defined mid-epigastric pulsatile mass without bruit
Extremities: No cyanosis, clubbing, or edema

LABORATORY: Ultrasound of the abdomen shows a 5.6-cm infrarenal abdominal aortic aneurysm

Which of the following is the next best step in her management?

- A. Repeat abdominal ultrasound every 6 months until the aneurysm reaches 6 cm.
- B. Observation is best until she develops symptoms, then proceed to repair.
- C. Place her on warfarin.
- D. Vascular surgery consultation for aneurysm repair.
- E. Have her wear a tight-fitting corset.

166.

A 46-year-old woman presented initially to the hospital with acute substernal chest pain. She described no previous cardiac history. Her initial ECG showed acute ST-segment elevation of 5 mm and Q waves in the inferior-lateral leads. Subsequently her CPK increased to 3,300. It is now the 4th day post-MI, and you are seeing her for daily rounds.

She says that in the last few hours, she has become short of breath and feels like she is not feeling as well as yesterday. She has not had any syncopal episodes.

Significant aspect of the physical examination:

She now has a holosystolic murmur, which is loudest at the apex.

No signs of cardiac tamponade are present.

You order a stat echocardiogram.

At the same time as ordering the echocardiogram, which of the following do you do next?

- A. Notify your cardiovascular surgeon to come right away and evaluate her for emergent repair of VSD.
- B. Notify your cardiovascular surgeon to come right away and evaluate her for emergent mitral valve replacement.
- C. Notify your cardiovascular surgeon to come in the next day or two to evaluate her for elective repair of post-MI VSD.
- D. No surgery is indicated; this is a nonsurgical emergency only, and she will respond to pressor agents quickly.
- E. Schedule her for cardiocentesis.

167.

You are called to evaluate a 35-year-old man who is to undergo significant tooth extraction.

PAST MEDICAL HISTORY: Nonsignificant

SOCIAL HISTORY: Works as a clown on the rodeo circuit; frequently gets hit in the belly by bulls and horses

FAMILY HISTORY: Unremarkable

PHYSICAL EXAMINATION: Essentially unremarkable

For which of the following would antimicrobial prophylaxis for endocarditis be indicated?

- A. History of acute rheumatic fever but no cardiac murmur
- B. History of coronary artery bypass grafting
- C. History of ventricular septal defect repaired 3 years ago without residual murmur
- D. History of previous endocarditis
- E. Ostium primum atrial septal defect

168.

A dentist calls wanting to know about endocarditis prophylaxis for his patients. He gives you a list of items he is concerned about and asks your opinion if they require prophylaxis.

Which of the following require prophylaxis for dental procedures?

- A. Atrial septal defect.
 - B. History of coronary artery surgery.
 - C. Hypertrophic cardiomyopathy.
 - D. Presence of an implanted defibrillator with epicardial leads.
 - E. None of these choices requires prophylaxis.
-

169.

A 70-year-old woman had a prosthetic hip joint placed 6 years ago. She has not been to the dentist in years and has decided that maybe she should make a visit. She read on the Internet that some people need to take antibiotics before they go to the dentist. She is penicillin-allergic (anaphylaxis).

Based on her history so far, which of the following is correct about whether prophylaxis is warranted?

- A. Yes, she should take amoxicillin 2 grams 1 hour before her visit.
 - B. Yes, she should take cephalexin 2 grams 1 hour before her visit.
 - C. Yes, she should take clindamycin 600 mg 1 hour before her visit.
 - D. No, presence of prosthetic joints does not require antibiotic prophylaxis.
 - E. The answer depends on which device she had implanted—a porcine or mechanical hip.
-

170.

A 17-year-old senior is the starting guard on the state basketball championship team. He has been offered a full scholarship at a university after never missing a game in 4 seasons and setting the all-time school record in both total points and assists. Seated in the stands for the final game of the season, you are summoned when he collapses at mid-court after a thunderous game-ending dunk shot. You assist in his full resuscitation from ventricular fibrillation, accompanied in this effort by the local paramedics who were there in 3½ minutes.

With an opportunity to examine him in the hospital, you are struck by his bifid carotid impulses—which are mirrored in his apex cardiogram, the latter of which you are able to both palpate and project via shadows on the bed clothing. He has a harsh holosystolic murmur at the lower left sternal border that accentuates with the upright posture as well as the Valsalva strain. Occasional premature contractions are followed by radial artery impulses, which are diminished relative to the apparent sinus cycle pulsations.

You feel certain that the young man has which of the following?

- A. Hypertrophic obstructive cardiomyopathy (HOCM)
- B. Myxomatous mitral valve prolapse (MVP)
- C. Ostium secundum atrial septal defect (ASD)
- D. Ostium primum atrioventricular septal defect (AVSD)
- E. Acquired (muscular) ventricular septal defect (VSD)

171.

A 61-year-old man presents for evaluation. He weighs 205 lbs (body mass index [BMI] = 31 kg/M² @ height of 5' 8"), and smokes 2½ packs daily of unfiltered cigarettes. His latest serum cholesterol was 326 mg/dL with low- and high-density (LDL & HDL) sub-fractions of 236 and 32, respectively, and triglycerides of 290. He engages a patron in a shouting match, whereupon he is seen to clutch his chest in horror with what he describes as "crushing, heavy, smothering" chest discomfort. The local Emergency Medical Service (EMS) personnel are summoned and arrive promptly; they administer oxygen and nitroglycerin after documenting a systemic arterial blood pressure of 190/110 mmHg.

At the hospital, he is found to have completely normal "cardiac markers," and his electrocardiogram reveals deep symmetrical T-wave inversions across all of the precordial leads.

You write "unstable angina" as your impression on the chart, knowing that the most likely acute pathophysiology of this event has been which of the following?

- A. Mural thrombus formation on a ruptured or eroded atherosclerotic plaque
 - B. Dissection of the thoracic aorta at the left coronary ostium
 - C. Intense vasospasm of the left anterior descending coronary (resulting in total occlusion)
 - D. Myocardial oxygen demand due to accelerated hypertension
 - E. Adverse rheologic properties of the coronary circulation (via hyperlipidemia)
-

172.

A 63-year-old, retired, second grade English teacher presents to the emergency department with the local EMS after she suffered 40 minutes of crushing chest pain at home. You note her ashen skin color with moist clammy features and a BP of 80/60 mmHg with a heart rate of 122/min. Her systemic venous pressure appears to be elevated, and there is no murmur.

Her ECG reveals 6–8 mm ST-segment elevation in leads I, aVL, and V1–V6 with hyperacute T wave changes in the same leads and developing deep Q waves.

Without an apparent mechanical complication of her acute event, you know that her prognosis may be improved by which of the following?

- A. Acute mitral valvuloplasty
 - B. Surgical resection of the myocardial infarction segment
 - C. Urgent revascularization
 - D. Immediate high-dose adrenergic therapy (e.g., propranolol 80 mg every 6 hr)
 - E. Chronic subcutaneous home infusion of dobutamine
-

173.

You are on duty in the emergency department when a group of four companions present their friend, a 21-year-old woman who works for the local escort service. She is acutely ill with a temperature of 104° F, HR 130/min, respirations 18/minute, and apparent distress. Her systemic venous pressure is elevated, and the jugular venous pulse contour is dominated by large "cv" waves that swell with each inspiration. Your auscultatory examination reveals a Grade III/VI holosystolic murmur heard best at the lower left (and right) sternal border(s), and which

accentuates to Grade IV/VI intensity with inspiration. The liver seems to pulsate with each systole. A chest x-ray reveals scattered focal white fluffy opacities. You recognize what is no doubt a complication of her intravenous heroin usage.

Which of the following is the most likely diagnosis, manifested as acute?

- A. Mitral regurgitation
- B. Aortic valvular regurgitation
- C. Tricuspid regurgitation
- D. Ruptured sinus of Valsalva aneurysm
- E. Bleeding pulmonary arteriovenous (AV) fistula

174.

You are called to the emergency department to be introduced to a retired 66-year-old high school English teacher who has been sitting up at night for the past week, unable to lie flat for more than 15 minutes. Your examination in the emergency department reveals a HR of 100/min, respirations of 20/min, jugular venous distension to the angle of the jaw with the patient sitting bolt upright, hepatomegaly with a vertical expanse of percussive dullness of 15 cm in the mid-clavicular line, pitting ankle edema, and a murmur of tricuspid regurgitation that is holosystolic at the lower left sternal border and which increases from Grade I/VI to III/VI on inspiration (known as the Rivero-Carvalho maneuver). Careful auscultation further reveals gallop sounds early in diastole from both ventricles (RVS₃ and LVS₃). The lung fields are filled with diffuse inspiratory rales and crackling noises.

Your patient is clearly suffering from which of the following?

- A. Acute pulmonary thromboembolism
- B. Cor pulmonale heart disease
- C. Biventricular congestive heart failure
- D. Pericardial effusion with pericardial tamponade
- E. Eisenmenger transformation

175.

A 61-year-old patient seen in the emergency department presents with hypotension (88/60 mmHg), tachycardia (122/min), distended neck veins dominated by the “x” descents, and a globular cardiac silhouette on the chest x-ray. Careful analysis of her blood pressure reveals that the systolic Korotkoff sounds are first heard in exhalation only at 110 mmHg, whereas they are heard throughout the respiratory cycle only after further lowering the cuff pressure to 88 mmHg. You are well acquainted with this remarkable physical finding and immediately suspect the proper diagnosis.

Which of the following interventions is most likely to benefit this patient's care?

- A. IV furosemide
- B. Transfusion of 2 units of packed, washed red blood cells
- C. IV administration of propranolol
- D. IV infusion of 1.5 million units of streptokinase over 60 minutes
- E. Pericardiocentesis

176.

An 18-year-old ballet dancer seeks your consultation in the outpatient clinic because of cardiac consciousness (manifested as an intermittent “skipping” and “flipping” inside her chest). You are struck by her graceful physiognomy and measure her height as 70" and arm span as 71.5". Her joint laxity permits easy apposition of her thumbs to her forearm surfaces and, indeed, she reports the childhood ability to “touch her elbows together behind her back.”

Her physical examination includes the following: There is a mid-systolic click and a Grade II/VI late-systolic murmur. There is murmur augmentation with both standing and Valsalva strain. In addition, with handgrip, the click moves closer to S_1 and the murmur gets louder. There is murmur diminution with prompt squatting, followed (often) by dramatic augmentation of the murmur with resumption of the standing posture, occasionally to Grade VI intensity (e.g., audible in the room without a stethoscope).

Based on your findings, you are certain that she has which of the following?

- A. Myxomatous mitral valve prolapse (MVP)
 - B. Ostium secundum atrial septal defect (ASD)
 - C. Ostium primum atrioventricular septal defect (AVSD)
 - D. Acquired (muscular) ventricular septal defect (VSD)
 - E. Hypertrophic obstructive cardiomyopathy (HOCM; previously IHSS)
-

177.

A 56-year-old automobile mechanic presents to the emergency department with extreme dyspnea accompanied by a stabbing right thoracic pain that increases with each inspiration. The respiratory rate is 28/min; systemic arterial pressure is 100/84 mmHg. The jugular pulsations are noted to be elevated nearly to the earlobes with the patient sitting bolt upright; no clear pattern is discerned, although they seem to pulsate at a rate equal to the patient's arterial pulse of 110/min. A pleural rub is heard at the site of the chest discomfort. A right ventricular lift is apparent, and the pulmonary artery is palpable. S_2 is split widely and P_2 is loud and palpable. The patient reports having just completed a nearly nonstop 4,300-mile round-trip solo drive of an 18-wheeler to another garage on the West Coast and back. He is also known to have recently diagnosed unresectable adenocarcinoma of the colon, for which he refused further treatment. The patient admits to smoking 2½ packs per day of cigarettes since he was 15 years old (i.e., > 100 pack years).

This patient has an acute version of which of the following disorders?

- A. Tricuspid regurgitation due to ruptured chordal apparatus
 - B. Tricuspid stenosis due to malignant carcinoid syndrome
 - C. Cor pulmonale due to pulmonary thromboembolism
 - D. Pericardial constriction due to previous blunt chest trauma (steering wheel injury via motor vehicle accident)
 - E. Pericardial tamponade resulting from metastatic pericardial disease via bronchogenic carcinoma
-

178.

Your next patient is a 32-year-old African-American attorney who has been under extraordinary stress in the midst of a high-profile courtroom drama. He asked to see you because of chest pains. Your review of his ECG shows ST-segment elevations in multiple leads with prominent J-points and T-wave magnitudes that exceed the magnitude of the ST-segment elevations in those leads bearing the ST abnormalities. The patient's BP is (and has been) normal, as is his physical examination. Fortunately, the patient's life insurance evaluations had included an ECG tracing that you are able to obtain for comparison, and you note no significant changes between the 2 ECGs.

You know that the most likely explanation of the ST-segment findings is which of the following?

- A. Normal repolarization variant
 - B. Prinzmetal's variant angina pectoris
 - C. Chronic pericarditis
 - D. Recording artifact
 - E. Hypothyroidism (and hypothermia)
-

179.

Your new patient today is a 64-year-old retired coal miner who presents with progressive dyspnea and peripheral edema. He has sought compensation for "black lung" and has smoked non-filter cigarettes up to 3½ packs daily for 52 years. He begins each day with a 90-minute coughing session productive of "from 1/2 to 2/3 of a coffee cup" of dark sputum ("almost like tar"). His P_aO_2 on room air is 53 mmHg with a P_aCO_2 of 52 mmHg, HCO_3^- of 32 mmol/L and pH of 7.37. His ECG reveals maximum positive-amplitude R waves in limb lead III and isoelectric QRS complexes in lead aVR.

The most likely cause of QRS frontal plane axis deviation in this patient is which of the following?

- A. Systemic arterial hypertension, "essential" of long-standing
 - B. Pulmonary arterial hypertension, acquired via cor pulmonale
 - C. Severe calcific valvular aortic stenosis, acquired
 - D. Severe non-calcific valvular pulmonic stenosis, congenital
 - E. Coarctation of the thoracic aorta, post-ductal (adult type)
-

180.

A 61-year-old shop foreman gets off work at 3:30 p.m. and decides to stop at the local bar to share a few cold ones with the Friday crowd. After his 3rd mug of beer, each followed by a double shot of whiskey, he lurches off the back of the stool, landing on the floor, and appears unconscious. Trained in the basics of Advanced Cardiac Life Support (ACLS), the bartender quickly confirms that he indeed has a pulse with an apparent rate of 145/min. As the EMS team arrives on the scene, the patient has regained consciousness, though very intoxicated. They use their "quick-look" paddle electrodes and demonstrate clearly a wide complex tachycardia, which is quite regular and continues at the rate of 145/min. The QRS duration is 0.185 sec, and there appear to be P waves at a much slower rate. As the medics prepare to administer protocol-driven treatment, they call you in the emergency department describing all of the above.

You tell them that this indeed is most likely which of the following?

- A. AV nodal reentry tachycardia (AVNRT)
 - B. Multifocal atrial tachycardia (MAT)
 - C. Sinus tachycardia with bundle-branch block (BBB)
 - D. Ventricular tachycardia (VT)
 - E. Ventricular fibrillation (VF)
-

181.

A 19-year-old college student seeks a pre-employment physical from you in preparation for applying for the position of lifeguard at the local country club. You note his tall, thin habitus and obtain height and arm-span measurements of 72" each. Your examination documents a Grade II/VI systolic ejection "flow" murmur in the pulmonary outflow tract and apparent fixed splitting of the 2nd heart sound. His ECG demonstrates a mean electrical QRS axis of 115 degrees in the frontal plane, and there are prominent R waves in Lead V1 with a R:S ratio of (1.3:1).

You recognize that his apparent right ventricular hypertrophy (RVH) is surely a result of which of the following?

- A. Ostium secundum atrial septal defect (ASD)
 - B. Cystic fibrosis
 - C. Primary pulmonary hypertension
 - D. Membranous ventricular septal defect (VSD)
 - E. Type A Wolff-Parkinson-White syndrome (WPW)
-

182.

Your next patient is a 29-year-old with known phenylketonuria (PKU) and for whom you have attempted to provide general care for the last 10 years. Maintenance of a low-protein diet has been sporadic at best, in part because of her constant mobility. She found herself unexpectedly pregnant last year, and she has since given birth to a child who has been evaluated by one of your pediatrician colleagues. She reports the pediatrician's observation of brachio-femoral delay and an upper:lower limb BP asymmetry of 100 systolic in both arms as compared to 80 mmHg in the legs. All pressures were obtained by careful Doppler measurements.

You recognize that the child has which of the following?

- A. Kawasaki disease
 - B. Takayasu disease
 - C. Tetralogy of Fallot
 - D. Coarctation of the aorta
-

183.

The lead singer of a grunge rock band comes to your emergency department complaining of severe dyspnea, fever, and chills for the last 3 days. She admits to using intravenous heroin.

On examination, her temperature is 102.3° F, heart rate is 125 beats/min, and blood pressure 100/60 mmHg. She has large v waves in her jugular pulse. The carotid pulses are normal. She has a faint systolic murmur heard along the lower left sternal border, which becomes louder on inspiration. A 3rd heart sound is present in the same area. She has scattered rhonchi and wheezes on lung examination. There are no splinter hemorrhages or other manifestations of endocarditis in the extremities, although there are several pustules present over the antecubital veins in both arms.

Laboratory data show a white blood count of 15,600 with a preponderance of neutrophils. Hemoglobin is 12.2 g/dL; serum electrolytes, AST, and ALT are normal. Blood samples are sent for bacterial and fungal cultures, as well as hepatitis and HIV screening.

Which of the following is most likely to be present on an imaging study?

- A. A chest x-ray showing pulmonary edema
- B. A chest x-ray showing left ventricular enlargement
- C. An echocardiogram showing a large vegetation on the aortic valve
- D. An echocardiogram showing a large perforation in the anterior mitral valve leaflet
- E. A ventilation/perfusion lung scan showing multiple perfusion defects

184.

A 19-year-old female collapses and dies during a sprint at a track meet. She was previously healthy and had no abnormalities on her school's routine physical examination for athletes.

Unfortunately, of autopsies done on individuals like this woman, a majority show no abnormalities.

If an abnormality is found at autopsy, which of the following is most likely?

- A. Large mitral valve leaflets with infiltration of myxomatous material on microscopic examination
- B. An anomalous origin of the left anterior descending coronary artery from the right coronary cusp
- C. Hypertrophic cardiomyopathy
- D. Severe pulmonic stenosis

185.

Imagine it is Boston during the Civil War. A woman takes some bread to some starving immigrant neighbors, one of whom has scarlet fever. A few years later, she is dying of a cardiac-related illness.

Which of the following would she most likely have on physical examination?

- A. A soft S₁
- B. A soft, decrescendo blowing murmur heard at the lower left sternal border in the sitting position.
- C. A sound heard with the diaphragm at the apex shortly after S₂
- D. A midsystolic click followed by a systolic murmur heard at the left sternal border
- E. A sound heard best with the bell at the apex after S₂

186.

An elderly man's elevated neck veins are easily seen in exam. He has known advanced left and right heart failure from previous myocardial infarctions.

Which of the following patterns would these neck veins most likely have?

- A. Large *a* waves and slow *y* descents
 - B. Large *a* waves and very large *v* waves
 - C. Rapid *x* and *y* descents
 - D. Regular cannon *a* waves
 - E. Distended neck veins with no pulsatile activity
-

187.

A 45-year-old Caucasian male CIA agent stationed in a Middle Eastern country develops the acute onset of severe dyspnea. He has no prior cardiac history and denies having chest pain. By the time he is taken to a hospital, he is in acute respiratory distress and requires intubation and mechanical ventilation. He has a very abnormal chest x-ray with total unilateral opacification. A preliminary diagnosis of acute pneumonia is made, blood cultures are drawn, and he is started on antibiotics.

After 48 hours, however, he is hypoxic on 100% $F_{I}O_2$ and is becoming progressively hypotensive. You are flown to his bedside. You learn he has no known medical problems and does not smoke. He was completely well prior to the onset of symptoms.

On examination, you find a fit-appearing man who, at the moment, is obviously extremely ill. His blood pressure is 70 mmHg systolic, his heart rate is 120 beats/minute, and he is afebrile. His neck veins are elevated to the jaw with his torso inclined to 30°. He has a very prominent apical impulse. He has a rapid rate with a soft apical S_3 . At times, through the respiratory noise, you think you hear a soft, early systolic decrescendo murmur near the apex. There are coarse breath sounds throughout the left lung and diminished breath sounds on the right. You confirm the chest x-ray findings. His white blood count is normal. The blood cultures are not growing anything, and tracheal cultures show normal flora. An ECG shows sinus tachycardia, but is otherwise normal.

You have brought along a new miniaturized echocardiogram machine, but the echo is extremely difficult technically because of his supine position and being on a mechanical ventilator.

Which of the following is the likely cause of this man's severe illness?

- A. Unilateral pneumonia
- B. An acute myocardial infarction with cardiogenic shock
- C. An acute myocardial infarction with a ventricular septal defect
- D. Acute aortic regurgitation from infectious endocarditis; he is a closet IV-drug abuser
- E. Acute mitral regurgitation from rupture of a myxomatous chordae

188.

You are a physician moonlighting in a small town hospital. A severely ill man shows up at the front door. You determine that he has acute mitral regurgitation from rupture of a myxomatous chordae.

Which of the following should you do as soon as possible?

- A. Transfer him via emergency air ambulance for urgent coronary angiography and probable coronary bypass grafting.
 - B. Transfer him emergently for mitral valve repair or replacement.
 - C. Start him on low-dose intravenous dopamine and, cautiously, on intravenous nitroprusside.
 - D. Change the antibiotic coverage to the broadest possible spectrum and add positive end-expiratory pressure to his ventilator settings.
 - E. Transfer him emergently for aortic valve replacement.
-

189.

You have a 65-year-old neighbor who just told you that he has been having intermittent chest pain that began 6 months ago. He has no history of heart disease and, other than hypertension, has no known medical problems. He describes a pressure-type sensation in his mid-chest that occurs when he takes his 5-mile walk every day. You live in the foothills of the mountains and have seen your neighbor going up and down some fairly serious grades on his walk. The chest pain occurs usually when he is walking up the last steep hill. He has discovered that if he rests for 10 minutes before attempting this climb, he does not get the pain.

You convince him to come to your office for an evaluation. On examination, his blood pressure is 140/95, but otherwise there are no abnormalities. You happen to have a treadmill in your office, and he exercises for 11 minutes on a Bruce protocol (13.4 METs). He develops mild chest pain at peak exertion and has 1 mm of horizontal ST-segment depression in leads II, III, and aVF, which return to normal within 3 minutes into the recovery phase.

Which of the following should you recommend?

- A. Prescribe sublingual nitroglycerin as needed and begin secondary prevention for coronary artery disease.
 - B. Immediate hospitalization and cardiac catheterization with the intention of revascularization by your cardiologist partner.
 - C. Medical therapy with amlodipine and aspirin.
 - D. Repeat the exercise study with thallium scintigraphy.
 - E. Prescribe sublingual nitroglycerin and an angiotensin-converting enzyme inhibitor.
-

190.

A patient has been transferred to your hospital because of an episode of syncope and chest pain. At the other facility, a myocardial infarction was ruled out with cardiac markers, and they are at a loss to know why he had this episode. Upon arrival, he is resting comfortably and has had no more chest pain since the event 2 days ago. He had never had a similar episode. He recalls the sudden onset of sharp chest pain while sitting watching television and then waking up with his wife leaning over him. She tells you that he lost consciousness for about 30 seconds and did not have any tonic-clonic movement or loss of bowel or bladder control. He was immediately aware of his surroundings on awakening. He denies any other medical problems except a tibial fracture of his right leg 2 years ago, when he fell off his lawn tractor while negotiating a tight turn on a hillside.

On examination, his blood pressure is 130/70 mmHg, and heart rate is 67 beats/min and regular. There are no orthostatic changes. His neck veins are moderately elevated with prominent v waves. He has a prominent left parasternal lift and a 3rd heart sound along the left sternal border. He has a positive Kussmaul sign in the neck veins and a pulsatile liver. His apical impulse is in the normal location and has a normal diameter. There are no murmurs, and his lungs are clear to auscultation. His right leg is mildly edematous below the knee, but not painful.

All of his laboratory data are normal except his chest x-ray and ECG. The former shows a prominent right heart border and large proximal pulmonary arteries. The left heart configuration is normal. His ECG shows sinus rhythm, a QRS axis of 80°, tall peaked P waves in the inferior leads, and deeply inverted T waves across the precordial leads. You have been provided with an ECG from 2 years ago. At that time, the QRS axis was 30°, the P waves were normal, with a 15° axis, and the T waves were upright in the precordial leads.

You ask for a cardiology consult, and your colleague is concerned about the chest pain, syncope, and the newly inverted precordial T waves. She strongly recommends cardiac catheterization and coronary angiography to rule out a recent coronary event, possibly causing ventricular tachycardia as a cause of the syncope. She does not understand, however, how to correlate the physical examination findings with this diagnosis, so she plans to do a right heart catheterization as well.

Rather to her surprise, his coronary arteries are completely normal, and contrast left ventriculography shows no wall motion abnormalities.

Hemodynamics from the left and right heart catheterization are as follows:

Right atrial pressure (mmHg)	18
Right ventricular pressure	70/20
Pulmonary arterial pressure	72/35
Pulmonary capillary wedge pressure	10
Left ventricular end-diastolic pressure	8

She, being an excellent cardiologist, immediately schedules another test.

Which of the following will she most likely order?

- A. A transthoracic echocardiogram
- B. A transesophageal echocardiogram
- C. An arterial blood gas
- D. A ventilation/perfusion lung scan
- E. A carbon monoxide-diffusing lung study (DLCO)

191.

The chief of cardiology at a major university teaching hospital is generally agreed among the house staff to be manic and have a 5-minute attention span. You have the privilege of being the senior resident in the coronary care unit while he is your attending physician. You are minding your own business on rounds, listening to the medical student drone on with his presentation. You notice that the chief is becoming restless, always a bad sign. The student says something about the patient's neck veins being elevated when the attending suddenly launches into an impromptu lecture on the causes of neck vein elevation.

He turns to the white board and draws 2 figures. See next:



Patient A, right atrial pressure (the horizontal line presents 20 mmHg)



Patient B, right atrial pressure (the horizontal line represents 20 mmHg)

The chief then makes some statements about these drawings to the medical student and asks which of them are true.

Which of the following is the most likely answer?

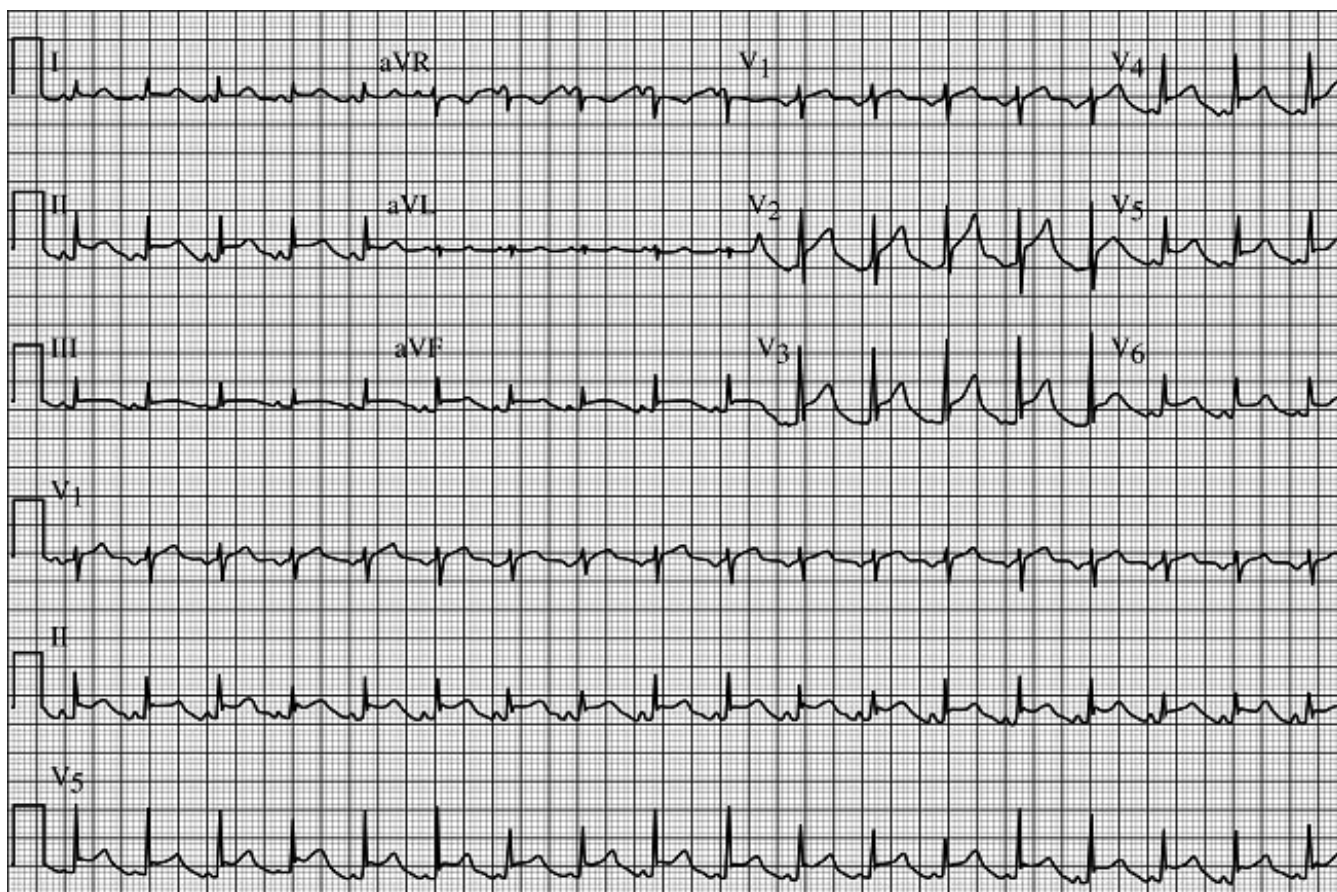
- A. Patient A is more likely than patient B to have pulsus paradoxus.
- B. Patient A is more likely than patient B to have an early diastolic sound.
- C. Patient A is more likely than patient B to have calcification of the pericardium on chest x-ray.
- D. Patient A is more likely than patient B to have had symptoms for months.
- E. Patient A is more likely than patient B to have a Kussmaul sign.

192.

A 56-year-old woman comes to your emergency department complaining of the acute onset of chest pain 2 hours ago. She is in so much discomfort that it is hard to obtain a history, but she says she had been doing well until the onset of this pain, except for a mild upper respiratory infection for the past few days. She describes the pain as a sharp, stabbing feeling in the center of her chest. She has no history of cardiac disease, but does have risk factors of hypertension, hyperlipidemia, Type 2 diabetes, and substantial obesity.

On physical examination, her blood pressure is 160/96 and her heart rate is 115 beats/min. Her cardiac examination is extremely difficult because of her obesity and her constant movement as she tries to find a comfortable position. At least she has no pedal edema.

According to the ACC/AHA guidelines on the management of acute chest pain, she is given an aspirin to chew, blood is drawn for cardiac markers, and an electrocardiogram is obtained. Her ECG appears here:



You should immediately do which of the following?

- A. Start an appropriate dose of tissue plasminogen activator (tPA) and intravenous heparin.
- B. Although the transportation time is 90 minutes, arrange immediate transfer to a tertiary care medical center for acute coronary angiography and probable coronary intervention.
- C. Start intravenous heparin, clopidogrel, and a GP IIb/IIIa inhibitor.
- D. Have the cardiologist come to the hospital and perform a transesophageal echocardiogram to rule out an acute thoracic aortic dissection.
- E. Treat the immediate pain with an intravenous narcotic and start ibuprofen 2,400 mg/day.

193.

Which of the following patients is likely to benefit the most from thrombolytic therapy?

- A. A 46-year-old man with the onset of chest pain 4 hours ago, who has small Q waves and 3 mm of ST-segment elevation in leads II, III, and aVF
- B. An 80-year-old woman with a recent onset of mild right hemiparesis and 2 hours of chest pain, with an ECG showing no Q waves and 4 mm of ST-segment elevation from leads V1 to V6, and 2 mm of ST-elevation in leads I and aVF
- C. A 75-year-old man with the onset of chest pain 5 hours ago and a new left bundle-branch block
- D. A 65-year-old man with 2 previous coronary bypass surgeries and 2 hours of chest pain, who has 3 mm of ST-segment depression and new T wave inversion in leads V1 to V4
- E. A 72-year-old woman with the onset of chest pain 3 hours ago, with tall R waves and ST-segment depression in leads V1 and V2

194.

A 70-year-old man is admitted to another hospital with an acute anterolateral myocardial infarction and is transferred to your tertiary care medical center 2 days later for further management. He had coronary bypass surgery 8 years ago. Because he continues to have mild chest pain, you refer him to your colleague for coronary angiography. The procedure shows occlusion of the left anterior descending and the right coronary arteries and a high-grade stenosis in the proximal circumflex artery. His internal mammary artery is a small vessel that is grafted to the distal left anterior descending. There is very slow flow through the graft, and a 90% stenosis of the left anterior descending distal to the insertion of the graft. The saphenous vein graft to the obtuse marginal branch of the circumflex is widely patent. The vein graft to the distal right coronary has a 95% irregular stenosis in its mid portion. The cardiologist successfully deploys a stent in the right coronary graft.

The patient recovers without further complications. He exercises for 7 METs on a treadmill prior to discharge without chest pain or ECG changes. He is placed on secondary prevention medications and discharged to home. Four days later he is readmitted to your service complaining of atypical chest pain, nausea, vomiting, and diarrhea. His neck veins are not elevated; he has a few wheezes in both lungs, and some mild abdominal tenderness. His laboratory data show a white blood count of 15,800 and a bicarbonate of 20 mEq/L. You make a diagnosis of possible viral gastroenteritis and treat him with intravenous fluids.

The next morning he is clearly worse, now with severe dyspnea, audible wheezing, and confusion. On examination, his blood pressure is 140/85 mmHg, heart rate is 125, and his temperature is 102.2° F. He has prominent *a* and *v* waves in the neck, and the veins are elevated to the jaw at 30°. He has diffuse rales and wheezing in both lungs, and he is using his accessory muscles of respiration. His heart is very difficult to hear through the respiratory sounds. He groans as you palpate his abdomen, but his belly is soft and there are a few scattered bowel sounds. His extremities are cold and somewhat mottled. There is a bluish-black appearance to the end of one of his toes.

The impressive parts of his laboratory data are his metabolic acidosis, high white blood count, and an arterial blood gas that shows a pH of 7.15, pO₂ of 50 mmHg, pCO₂ of 40 mmHg, and a bicarbonate of 12 mEq/L. He is transferred to the critical care unit, where he is intubated and placed on mechanical ventilation. An emergency echocardiogram is obtained.

Which of the following is the most likely finding?

- A. Extremely poor left ventricular function with an ejection fraction of 10% and elevated right heart pressures
 - B. A large, lobulated, mobile mass in the apex of the left ventricle
 - C. Rupture of the tip of the posterior papillary muscle and severe mitral regurgitation
 - D. A ventricular septal defect
 - E. Rupture of the anterior wall of the left ventricle with a large pericardial effusion and signs of tamponade
-

195.

A very tall, thin young man comes to your clinic complaining of mid-back pain. He says 3 days ago, he began having a sharp, non-radiating, continuous pain between his scapulae. The pain has been severe enough that he has been unable to sleep. He has not had any similar symptoms previously, and has no other known medical problems. His examination is remarkable for his 6' 8" height; long, spindly fingers; and pectus excavatum. There is no palpable tenderness in his back. His femoral pulses seem somewhat diminished. On neurological examination, he has some mild weakness to dorsiflexion of his right foot.

Expecting bad things, you consult your cardiologist colleague, and she elects to perform a transesophageal echocardiogram.

Which of the following statements concerning this disorder is true?

- A. Dissection of the ascending aorta should be treated with aggressive medical therapy and close observation.
 - B. Appropriate medical therapy for an aortic dissection is intravenous nitroprusside alone.
 - C. Lowering the aortic systolic pressure is the most important aspect of medical therapy.
 - D. All descending thoracic aortic dissections require immediate surgery.
 - E. Aortic dissection can occur in the 3rd trimester of pregnancy without any obvious predisposing factors.
-

196.

A 76-year-old man was shooting pool when he collapsed to the floor. His friends report that he was lining up a shot when he suddenly lost consciousness, was unarousable for about 20 seconds, had no jerking movements, and did not lose control of his bowel or bladder. When he woke up, he was completely aware of his surroundings and was ready to resume his game, but his friends insisted that he come to your emergency department. Upon questioning, the man denies any cardiac symptoms or history, although he admits to having 3 previous episodes of syncope. His risk factors for coronary artery disease include age, male sex, and hypertension.

On examination, his blood pressure is 110/65 mmHg, and heart rate is 165 beats/min. He has prominent regular cannon *a* waves in the neck veins. His cardiac and neurological examination is otherwise normal. His basic electrolytes, complete blood count, and cardiac markers are all normal. His electrocardiogram shows a narrow QRS tachycardia at a rate of 168.

Since he is hemodynamically stable, you decide to admit him to the telemetry unit and observe his course. He does well, still at the same heart rate, until 2 hours later when he gets up to use the bedside commode. He then climbs back into the bed and faints. A rhythm strip of the whole event is captured by the monitoring equipment.

Which of the following most likely describes the findings on the rhythm strip?

- A. Sudden cessation of the narrow QRS complex tachycardia followed by a 15-second period of asystole
 - B. A 30-second episode of rapid ventricular tachycardia
 - C. A 30-second episode of 3rd degree AV block with a slow ventricular escape rhythm
 - D. A 30-second episode of *torsade de pointes*
 - E. An acceleration of the ventricular rate to 330 from 165, indicating that the initial rhythm was atrial flutter with 2:1 AV block
-

197.

A 59-year-old man comes to your office because of a history of “congestive heart failure.” He reports increasing dyspnea over the past 2 years to the point where he can now walk only about 50 feet before having to stop. He also complains of being somewhat lightheaded when he stands up. He denies chest pain, orthopnea, or paroxysmal nocturnal dyspnea. He shows you the pills he was prescribed by his previous physician and, after a quick consultation with the “Physician’s Desk Reference,” you conclude that they are digoxin and furosemide. His risk factors for coronary artery disease include age, male sex, and hypertension.

On examination, his blood pressure is 180/110 mmHg and his heart rate is 85 while sitting. Upon standing, his blood pressure is 145/85 and his heart rate is 105. His neck veins are not elevated. His lungs have moderate bibasilar crackles. He has a very prominent apical impulse and a low-pitched sound heard best at the apex just before the 1st heart sound. The remainder of the examination is normal.

Laboratory data are all normal except for a BUN of 38 mg/dL and a creatinine of 2.2 mg/dL. His chest x-ray shows cardiomegaly with moderate pulmonary vascular redistribution. His electrocardiogram shows sinus rhythm with voltage criteria for left ventricular hypertrophy. There are nonspecific ST-segment and T-wave changes, particularly in the precordial leads.

For a better understanding of his heart failure, you obtain an echocardiogram.

Which of the following is the most likely finding?

- A. Concentric left ventricular hypertrophy and severe aortic stenosis
 - B. Concentric left ventricular hypertrophy, segmental wall motion abnormalities, and a left ventricular ejection fraction of 15%
 - C. Concentric left ventricular hypertrophy and a left ventricular ejection fraction of 80%
 - D. Normal-sized, non-hypertrophied ventricles with a strange speckled pattern, huge atria, and a left ventricular ejection fraction of 45%
 - E. Minimal left ventricular hypertrophy, four-chamber cardiac enlargement, and a left ventricular ejection fraction of 10%
-

198.

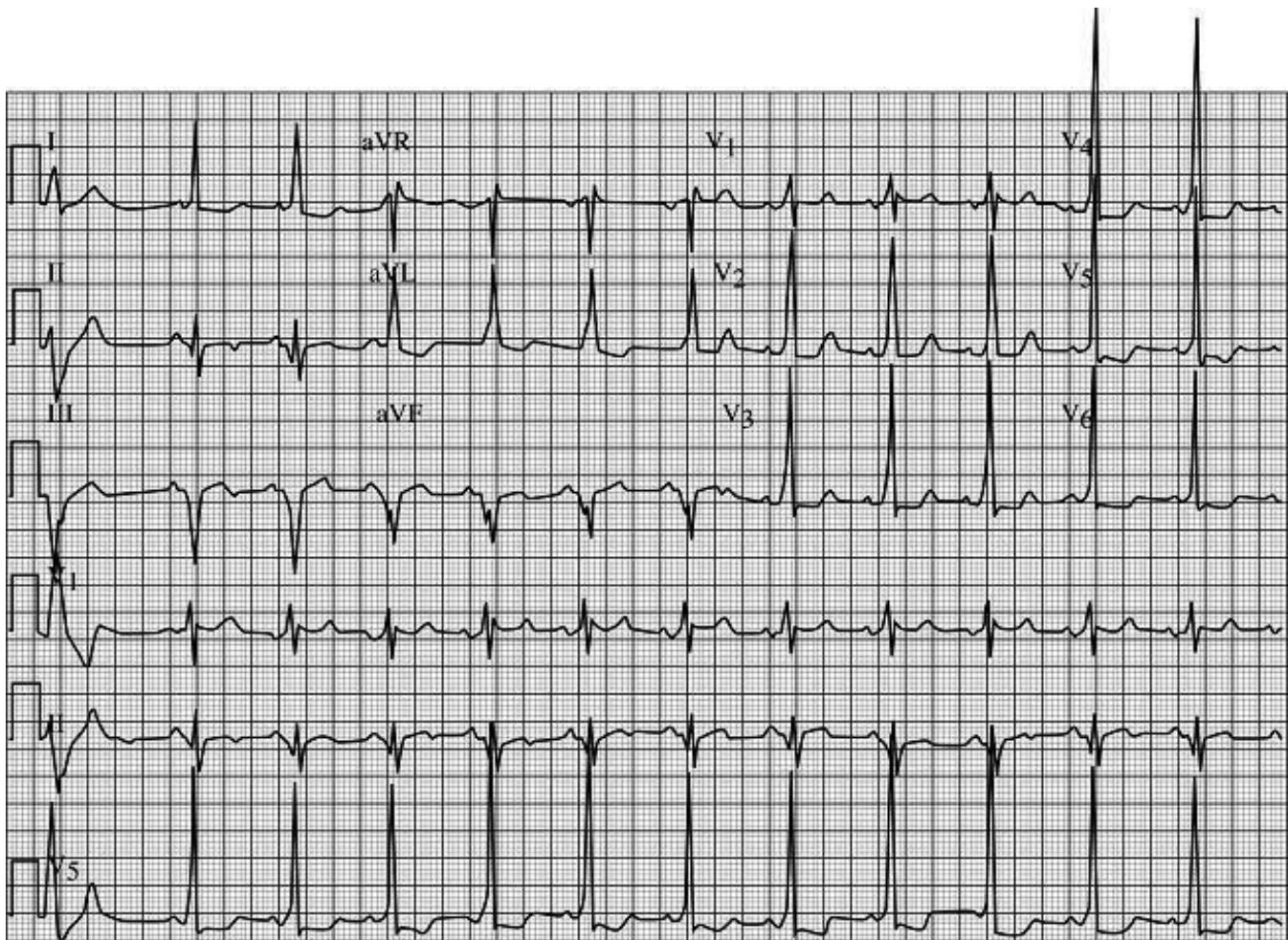
A hypertensive patient presents with concentric left ventricular hypertrophy and a left ventricular ejection fraction of 80%. He is on digoxin and furosemide.

Which of the following is the best therapy for such a patient?

- A. Stop digoxin, decrease the dose of furosemide, and start beta-blockers.
- B. Continue digoxin and furosemide and schedule coronary angiography.
- C. Continue digoxin and furosemide; add an angiotensin-converting enzyme inhibitor, low-dose carvedilol, and spironolactone.
- D. Admit him for infusion of intravenous amrinone.
- E. Continue digoxin and furosemide; add an angiotensin-converting enzyme inhibitor, low-dose carvedilol, and spironolactone; and schedule him for intermittent outpatient dobutamine infusion.

199.

A 35-year-old woman is referred to you because of episodes of palpitations. She brings a copy of her electrocardiogram, which is shown below. Before doing anything else, you decide to look at it.



Your eyes immediately bug out and, without further ado, you order which of the following tests?

- A. An echocardiogram
- B. A chest x-ray
- C. An electrophysiology study
- D. Coronary angiography
- E. Implantation of a cardio defibrillator

200.

A 39-year-old male has sudden onset of severe chest pain. It radiates into both arms and is associated with diaphoresis. By the time he arrives in the emergency department, the pain has resolved. He reports his father died of a heart attack at home at the age of 45. The patient has a history of mild hypertension. He has a high arched palate on physical examination.

Cholesterol: 245 mg/dL, ECG: 1st degree AV block/no ischemic changes.

Which of the following would you do next?

- A. Contrast chest CT scan
 - B. Cardiac catheterization
 - C. Admission to CCU to obtain serial enzymes to rule out MI
 - D. Administer TPA
 - E. Upper endoscopy
-

201.

A 70-year-old male, status post AVR replacement 2 years ago for aortic stenosis, presents with widespread ecchymosis on his back and legs and some bruising on the back of both hands. His last INR was 3 weeks ago and was 3. He states he saw a doctor 6 days ago for a cough and was put on a medication described as a “white tablet.”

His chronic medications include: warfarin 5 mg qd, albuterol inhaler 2 puffs 4 times a day, and nortriptyline 25 mg q hs.

Which of the following medications was he placed on?

- A. Trimethoprim/sulfamethoxazole
 - B. Amoxicillin
 - C. Codeine
 - D. Cefixime
-

202.

A 39-year-old woman with a prosthetic aortic valve presents with bruising. Her last INR 6 weeks ago was 2.4; today's INR is 6.5. She has not taken any extra warfarin.

Which of the following, when taken on a daily basis, could explain her increased INR?

- A. Calcium carbonate.
 - B. Acetaminophen.
 - C. Oral contraceptive pills (OCP).
 - D. Ranitidine.
 - E. None of the answers is correct.
-

203.

A 73-year-old man with prosthetic aortic valve presents for primary care. He has been well controlled on warfarin 3 mg q hs for 6 years with INR 2.5–3.0. He is concerned about his prostate, memory problems, and heart disease, and would like to take supplements recommended by his niece who works at a health food store.

Which of the following would you specifically recommend against?

- A. Ginkgo biloba
 - B. Cat's claw
 - C. Saw palmetto
 - D. Folate
-

204.

If you find an increased PT, a normal PTT, and a normal platelet count, it would indicate which one of the following types of deficiency or abnormality?

- A. Antiplatelet antibody
 - B. Factor X deficiency
 - C. Factor XIII deficiency
 - D. Factor I deficiency
 - E. Warfarin administration
-

205.

A 30-year-old woman presents with complaints of bleeding gums and easy bruisability for the past 7 months. She notes that her menses have been heavier than usual during the past few months.

Which of the following is appropriate in the initial workup?

- A. To be cost effective, start with a coagulation factor deficiency workup.
 - B. CBC with platelet count, PT, PTT, and bleeding time.
 - C. CBC with platelet count, PT, PTT, bleeding time, and Factors VIII and IX level.
 - D. CBC with platelet count, PT, PTT, antiplatelet antibody, and Factor VIII level.
-

INFECTIOUS DISEASE

206.

A heterosexual couple presents for advice regarding genital herpes therapy and prevention. The woman was diagnosed with herpes genitalis 6 months earlier. She was treated with acyclovir 400 mg 3x/day for 10 days with complete resolution of the lesions. However, she experienced a recurrence in the past week. The man has never been diagnosed with genital herpes. They're in a new monogamous relationship and are both immunocompetent.

Which of the following is the most appropriate next step in management?

- A. Advise the couple that in the absence of lesions, there is no risk of transmission.
 - B. Prescribe valacyclovir 500 mg once daily to the male partner in order to prevent transmission of HSV-2 infection.
 - C. Advise the couple that condom use does not significantly decrease the risk of transmission of genital HSV-2 infection.
 - D. Continuous suppressive therapy with valacyclovir is beneficial in decreasing risk of transmission to the uninfected sexual partner.
 - E. Advise the couple that continuous suppressive therapy with valacyclovir decreases the severity of recurrent episodes, but not their frequency.
-

207.

A 25-year-old man comes to the emergency department complaining of weakness in both legs. He reports that he started to have a tingling sensation in his toes about a day ago along with a slight bilateral foot-drop sensation. On awakening this morning, he had problems grasping objects and noted some weakness in his upper legs. He has had no fever, diplopia, dysphagia, or dyspnea. He had a "cold" 1 week prior to his current symptoms. He removed a tick from his waist about a week and a half ago. He eats homegrown vegetables and fruits that his mother cans for him back in West Virginia.

PAST MEDICAL HISTORY: Negative
 Immunizations up to date

SOCIAL HISTORY: Works as a truck driver in the Washington, DC area
 Smokes 2 packs/day of cigarettes
 Doesn't drink alcohol

FAMILY HISTORY: Negative

PHYSICAL EXAMINATION: BP 120/76, RR 18, Temp 97.9° F, P 86
 HEENT: PERRLA, EOMI
 Discs sharp
 TMs clear
 Throat clear
 Neck: Supple
 Heart: RRR with I/VI systolic flow murmur
 Lungs: CTA
 Abdomen: Bowel sounds present; no hepatosplenomegaly

Extremities:	No cyanosis, clubbing, or edema
Neuro:	Symmetrical weakness of lower extremities—distal muscles more affected than proximal muscles
	Bilateral foot drop
	Weakness of both hands noted
	Cranial nerves II-XII tested and intact
	Sensory perception is slightly decreased in the distal lower legs
	Patellar and Achilles reflexes are absent bilaterally

Which of the following is the most likely diagnosis?

- A. Botulism (foodborne)
- B. Poliomyelitis
- C. Tick paralysis
- D. Guillain-Barré syndrome
- E. Rabies

208.

A 30-year-old man with AIDS presents for worsening fatigue. He was found to be HIV-infected about 12 years ago. His CD4 count at that time was 180/cu mm, and he began taking trimethoprim-sulfamethoxazole and zidovudine (AZT). During the last several years, he has not wished to take any antiretroviral therapy and takes only monthly aerosolized pentamidine for *Pneumocystis* prophylaxis. Five months ago, his hemoglobin level started to decrease. A workup for gastrointestinal bleeding revealed nothing. Laboratory for iron, B₁₂, and folate were all normal. A serum erythropoietin level was 700 mU/mL (normal is 4–26). He received a red cell transfusion about 3 months ago.

His physical examination shows pallor.

LABORATORY STUDIES:	Hemoglobin:	6.0 g/dL
	Hematocrit:	19%
	WBC:	5,000/cu mm
	CD4 count:	62/cu mm
	Reticulocyte count:	0%

A bone marrow aspirate and biopsy reveal red blood cell aplasia with giant pronormoblasts.

Which of the following is the likely etiology for his anemia?

- A. Parvovirus B19
 - B. HTLV-I from his transfusion 3 months ago
 - C. *Campylobacter jejuni*
 - D. Pentamidine-induced anemia
 - E. Prior zidovudine use
-

209.

A 35-year-old woman works as a forester in Southern Arkansas. She comes to you with a 3-month history of cough and recent development of hemoptysis. While talking to her, you discover that she has lost 10 pounds in the last 3 months. She has been smoking cigarettes for 20 years and smokes up to 2 packs a day.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Lives in Camden, Arkansas, with her husband of 3 years
4 children ages 20, 18, 16, 1
Drinks 6-pack of beer on the weekend
No illicit drug use

FAMILY HISTORY: Father died at age 67 of lung cancer
Mother died at age 64 of lung cancer

PHYSICAL EXAMINATION: BP 110/70, P 88, Temp 100° F, RR 25, Weight 130 lbs
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple
Heart: RRR without murmurs, rubs, or gallops
Lungs: Scattered crackles in the bases
Abdomen: No hepatosplenomegaly
Extremities: Draining lesion on her left leg
Has been there for 3 months; puts “poultice” on it, and it gets better but then gets worse again

LABORATORY: CXR: Pulmonary mass noted at right base
Biopsy of cutaneous lesion:
Broad-based budding yeast

Based on your findings, which of the following is the most likely diagnosis?

- A. Coccidioidomycosis
- B. Histoplasmosis
- C. Blastomycosis
- D. Tuberculosis
- E. Lung carcinoma

210.

A 55-year-old man has fever and cough. He has AIDS and a history of disseminated histoplasmosis 2 years ago. He was treated initially with amphotericin B and had been maintained on itraconazole since. Last month, he started having fever and chills. Histoplasmosis was suspected again, and amphotericin B was restarted. Blood cultures, however, grew *Mycobacterium intracellulare*, and he was started on appropriate medications for that. He was restarted on his itraconazole maintenance therapy last month. Today, he comes in with recurrence of his fever and chills.

MEDICATIONS: Combivir and efavirenz for 6 months
Rifabutin 600 mg/daily for 1 month
Azithromycin 500 mg daily for 1 month
Ethambutol 1200 mg daily for 1 month
Itraconazole 200 mg daily for 2 weeks
Ranitidine 150 mg bid for 2 weeks for gastric reflux symptoms
Trimethoprim/sulfamethoxazole DS 1 daily

PHYSICAL EXAMINATION: Temp 103° F, BP 120/70, RR 24, P 100
HEENT: PERRLA, EOMI
TMs clear
Throat: clear
Neck: Supple
Heart: RRR without murmurs, rubs, or gallops
Lungs: Diminished breath sounds at left base
Abdomen: Liver span 14 cm
Spleen tip palpable
Extremities: No lesions noted

LABORATORY: WBC: 1,200 cells/cu mm
Hgb: 10 g/dL
Platelets: 100,000
Peripheral smear: Yeast forms seen

Which of the following is most likely correct?

- A. A serum cryptococcal antigen will be positive.
 - B. The patient has itraconazole-resistant *Histoplasma*.
 - C. Blood cultures will grow *Candida krusei*.
 - D. The yeast forms are likely contaminants.
 - E. Itraconazole and its metabolites are below therapeutic levels.
-

211.

A 30-year-old woman with negative past medical history presents to you with a 1-week history of pain in her wrists and hands. She has been afebrile and has not had a rash. She lives in a city complex and does not go into wooded areas. She has no pets and has not had any tick bites. Recently, her 8-year-old son had a serpiginous rash on his face and arms. His rash got worse when he took a bath or was out in the sun. He also was afebrile. Everything resolved in 4 days.

PHYSICAL EXAMINATION:

Essentially normal except for her wrists and hands, which are moderately tender. No effusions of the joints are noted. She has no conjunctivitis or scleral changes on examination.

Which of the following is the likely etiology for the symptoms in these 2 patients?

- A. Human herpesvirus 6
- B. Parvovirus B19
- C. Measles virus
- D. *Borrelia burgdorferi*
- E. *Neisseria gonorrhoeae*

212.

A 19-year-old chicken farmer comes to your office with a 2-week history of non-productive cough with low-grade fever. Additionally he has had sore throat and hoarseness associated with these symptoms. He has not had diarrhea, rigors, sweats, or chills. He owns a pet cockatoo and several parakeets. He is sexually active and uses condoms with every episode of intercourse. He denies IV-drug use or other risk factors for HIV. He does not smoke.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: On further questioning, he admits to smoking marijuana in the past—but says he never inhaled. Lives alone on his farm.

PHYSICAL EXAMINATION: Vitals are normal except for a temperature of 99.8° F

HEENT:	PERRLA, EOMI
	Sclera anicteric
Throat:	Red and inflamed; no exudates
Neck:	Supple
Heart:	RRR without murmurs, rubs, or gallops
Lungs:	Fine crackles heard at the right lung base
Abdomen:	Bowel sounds present
	No hepatosplenomegaly
Extremities:	No cyanosis, clubbing, or edema
Skin:	No rash

LABORATORY:

Leukocyte count:	12,000/cu mm; 60% neutrophils, 25% lymphocytes, 10% monocytes, 2% eosinophils
ESR:	57 mm/hr
TB Skin test:	0 mm
CXR:	Patchy infiltrate in the right lower lobe

Which of the following organisms is most likely to be causing his illness?

- A. *Chlamydophila pneumoniae*
- B. *Chlamydophila psittaci*
- C. *Legionella pneumoniae*
- D. *Coxiella burnetii*
- E. *Streptococcus pneumoniae*

213.

A 30-year-old woman presents in her 32nd week of pregnancy. She initially sees her obstetrician with complaints of fever and myalgias without any localizing symptoms. She denies any other problems. Her OB sends her to you for evaluation.

PAST MEDICAL HISTORY: 1st pregnancy; no problems until now

SOCIAL HISTORY: Doesn't smoke or drink
Works as a pharmaceutical rep

FAMILY HISTORY: Non-contributory

REVIEW OF SYSTEMS: Really quite uninteresting

PHYSICAL EXAMINATION: Normal except for a temperature of 102.5° F

LABORATORY: WBC is 10,000/cu mm with 70% neutrophils, 10% bands
Urinalysis is normal
Blood cultures are growing a gram-positive diphtheroid-like organism

Which of the following is the most appropriate antibiotic for this organism?

- A. Intravenous ceftriaxone.
 - B. Intravenous clindamycin.
 - C. Intravenous gentamicin.
 - D. Intravenous ampicillin.
 - E. No antibacterial therapy is indicated.
-

214.

A short and to-the-point question: You diagnose *C. difficile* (non-severe) diarrhea in a patient. You treat the patient with oral metronidazole and the patient's diarrhea resolves. The patient returns 3 weeks later with diarrhea again due to *C. difficile*.

Which of the following is the best next plan?

- A. Treat with oral metronidazole.
 - B. Treat with oral vancomycin.
 - C. Treat with oral fidaxomicin.
 - D. Do not treat with antibiotics.
-

215.

You are seeing a 30-year-old man with AIDS whom you have been following for years and recently have noticed that his CD4 count has continued to fall. He has not had any opportunistic infections and has done well with his antiretroviral therapies. You feel that he has most likely developed a more resistant HIV infection. He is taking trimethoprim/sulfamethoxazole for *Pneumocystis* prophylaxis. His physical examination is unremarkable.

LABORATORY: CD4 lymphocyte count is 28/cu mm
Viral load is 350,000 copies/mL

Because of his worsening immunosuppression, which of the following bacterial infection prophylaxis regimens do you recommend he start?

- A. Clarithromycin weekly
 - B. Azithromycin weekly
 - C. Rifampin daily
 - D. Rifabutin and clarithromycin daily
 - E. Nothing
-

216.

A 39-year-old woman with a recent history of otitis media is treated with amoxicillin. She presents with a 12-hour history of severe headache, nausea, and vomiting—and is now lethargic.

PAST MEDICAL HISTORY: Negative except for recent otitis 2 weeks ago; did not take all of her amoxicillin; stopped after 4 days.

SOCIAL HISTORY: Former Miss USA winner
Now a talk show host for local TV station
Doesn't smoke
Drinks a margarita on the weekend

FAMILY HISTORY: Non-contributory

PHYSICAL EXAMINATION: Temp 102.6° F, P 110, RR 24, BP 130/65 mmHg
HEENT: PERRLA, EOMI
Disc sharp
TMs clear
Throat clear
Neck: Mild nuchal rigidity
Heart: RRR without murmurs
Lungs: Scattered crackles throughout; greatest in left lower lobe
Abdomen: Benign
Extremities: Normal
Neuro: Lethargic
No papilledema
Cranial nerves tested intact
No focal deficits

LABORATORY: WBC: 20,000 cu mm; 76% segs; 10% bands
Electrolytes: Normal
CSF WBC: 3000 WBC/cu mm; 95% neutrophils
CSF Glucose: 20 mg/dL (serum glucose 100 mg/dL)
CSF Protein: 176 mg/dL
CSF Gram stain: Loaded with neutrophils and a few gram-positive, lancet-shaped diplococci

Which of the following is/are the best empiric antibiotic choice(s) for her?

- A. Ceftriaxone alone
- B. Vancomycin alone
- C. Ceftriaxone and vancomycin
- D. Ampicillin and ceftazidime
- E. Penicillin G

217.

A 60-year-old man is evaluated because of a 1-week history of lower extremity weakness, new onset of difficulty speaking, and decreased attention span. He has had occasional diarrhea and abdominal pain in the last year. Of significance is that he has lost about 25 lbs during the past year. He complains of joint pains, particularly in his knees. He has had low-grade fever but no chills during the last year. He reports occasional night sweats. He has noted no other neurologic findings like seizures. His wife reports that areas of his skin are becoming darker—particularly those exposed to light.

PAST MEDICAL HISTORY: Healthy before this episode

SOCIAL HISTORY: Lives in Michigan
Works in the auto industry

FAMILY HISTORY: Negative

REVIEW OF SYSTEMS: Pretty much covered in the HPI

PHYSICAL EXAMINATION: BP 130/80, T 99.9° F, P 84, RR 18
 General: Alert, but oriented only to person and place
 HEENT: PERRLA, EOMI
 Mild right-sided facial droop
 Throat clear
 Neck: Scattered lymphadenopathy in the anterior and posterior cervical chains; most nodes are 1 x 1 cm, but a few are 2 x 1 cm
 Heart: RRR without murmurs, rubs, or gallops
 Lungs: CTA
 Abdomen: Spleen tip palpated; no hepatomegaly
 A questionable abdominal mass discerned with deep palpation
 Extremities: No cyanosis, clubbing, or edema
 Neuro: Right lower extremity with increased tone and 4/5 muscle strength
 Sensation is normal
 Deep tendon reflexes are symmetrical

LABORATORY: Hemoglobin: 15.2 gm/dL
 Hematocrit: 50%
 WBC: 30,000/cu mm; 65% neutrophils, 28% lymphs
 ESR: 13 mm/hr
 Glucose: 200 mg/dL
 Albumin: 3.5 g/dL
 ALT: 30 U/L
 AST: 25 U/L

CT of the head shows a hypodense left frontal lobe lesion. A stereotactic brain biopsy is taken and shows acute inflammation and necrosis with **no** malignant cells. Gram stain shows 1+ WBCs but **no** organisms. However, a specimen stained with periodic acid-Schiff (PAS) shows multiple PAS-positive foamy macrophages.

Which of the following organisms is likely responsible for his condition?

- A. *Coxiella burnetii*
- B. *Mycobacterium tuberculosis*
- C. *Tropheryma whipplei*
- D. *Nocardia asteroides*
- E. *Actinomyces israelii*

218.

A 28-year-old woman, who is a health care worker in Memphis, Tennessee, is being evaluated for a 2-week history of progressive shortness of breath, dry cough, fever, and weight loss. She lives with her boyfriend who has a history of IV drug abuse. She denies use of IV-drugs and says that her boyfriend has been “clean” since last year. She does not know his HIV status, however.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Works as a nurse’s aide in local hospital
Doesn’t smoke or drink
Lives with current boyfriend for the past 3 years, monogamous

FAMILY HISTORY: Negative

PHYSICAL EXAMINATION: BP 120/70, P 80, RR 28, Temp 101° F
HEENT: PERRLA, EOMI
TMs clear
Throat: Oral thrush
Neck: Mobile, nontender lymph nodes noted in the posterior cervical chain
Heart: RRR with I/VI systolic flow murmur
Lungs: Scattered crackles, especially prominent in left base
Abdomen: Liver is 4 cm below right costal margin; mildly tender
Spleen tip palpable
Extremities: No cyanosis, clubbing, or edema
Neuro: No deficits noted

LABORATORY: WBC: 3,200/cu mm; 80% lymphocytes
Hemoglobin: 9.8 mg/dL
Platelets: 110,000/cu mm
AST: 100 U/L
ALT: 89 U/L
HIV ELISA: Positive
Western blot: Pending
CD4 lymphocytes: 37/cu mm

Which of the following is the most likely diagnosis?

- A. Disseminated *Pneumocystis* infection
- B. Disseminated *Histoplasma* infection
- C. Lymphoma
- D. Disseminated *Mycobacterium tuberculosis*
- E. Disseminated coccidioidomycosis

219.

A 19-year-old college student is brought into the emergency department by his roommates because they were unable to awaken him this morning. They report that he has not had any alcohol for the past 3 months and is a model student. During the past 2 to 3 days, however, they say that he has exhibited bizarre behavior and has been intermittently confused. He takes no medications, and his friends adamantly deny that he has ever used any type of illicit drug.

PAST MEDICAL HISTORY: Several visits to the emergency department for “the drip”

SOCIAL HISTORY: Majoring in Interior Design

PHYSICAL EXAMINATION: Temp 102° F, P 100, RR 22, BP 120/70, Ht: 5' 3", Wt: 260 lbs

General: Responds only to deep pain

HEENT: PERRLA, EOMI

TMs clear

Throat clear

Neck: Supple

Heart: RRR without murmurs, rubs, or gallops

Lungs: CTA

Abdomen: Bowel sounds present, no hepatosplenomegaly

Extremities: No cyanosis, clubbing, or edema; **no** rash

Neuro: No focal neurologic signs

LABORATORY:

CBC: Normal

Electrolytes: Normal

MRI of head: Focal lesion at the base of the left temporal lobe with mild edema

CXR: Normal

Lumbar puncture below:

WBC: 80 WBC/cu mm (50% neutrophils, 50% lymphocytes)

RBC: 10 RBC/cu mm

Protein: 43 mg/dL (normal)

Glucose: 60 mg/dL (plasma glucose 80 mg/dL)

Gram Stain: Negative

Based on your findings, which of the following is the likely diagnosis?

- A. Neurosyphilis
- B. *Bartonella henselae* infection
- C. Varicella meningoencephalitis
- D. *Streptococcus pneumoniae* meningitis
- E. Herpes simplex meningoencephalitis

220.

A 45-year-old man lives in Nevada and comes in with a chief complaint of urinary frequency and burning. He has never had these symptoms. He has had fever for 2 days and now has chills.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Smokes 2 packs a day
Drinks 2 whiskey shots daily

FAMILY HISTORY: Mother died of alcoholic liver disease at age 50
Father died of alcoholic liver disease at age 50
Brother died of alcoholic liver disease at age 50
Sister died of alcoholic liver disease at age 50
Cousin died of alcoholic liver disease at age 50

PHYSICAL EXAMINATION: BP 90/70, RR 25, Temp 104° F, P 120
General: Severely ill-appearing man in some distress
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present, liver span 16 cm
Extremities: Trace pedal edema
GU: No lesions
Suprapubic tenderness noted
Rectal exam heme-negative; nontender prostate

LABORATORY: Blood and urine cultures positive for *E. coli*; sensitive to ciprofloxacin, amikacin, and piperacillin only

You start therapy with intravenous ciprofloxacin, and he responds nicely. It is day 5 of admission, and you are ready to send him home to complete oral antibiotics.

Which of the following agents should you not use with his ciprofloxacin?

- A. Cimetidine
 - B. Ranitidine
 - C. Sucralfate
 - D. Loratadine
 - E. Disulfiram
-

221.

A 65-year-old man with non-insulin dependent diabetes mellitus is seen in your office because of severe pain and tenderness of his right ear. He had been doing well before this.

PAST MEDICAL HISTORY: NIDDM for 30 years
Currently takes metformin 1,000 mg daily

SOCIAL HISTORY: Lives alone
Doesn't smoke or drink
Retired college math professor

PHYSICAL EXAMINATION: BP 130/70, P 100, RR 20, Temp 103° F
HEENT: PERRLA, EOMI
TMs: Examination extremely painful and shows marked edema, erythema, and purulent material in the external auditory canal
External ear is markedly swollen
Throat clear
Neck: Supple; no meningismus
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Benign
Extremities: No cyanosis, clubbing, or edema

Which of the following is the likely etiology for his infection?

- A. *Pseudomonas aeruginosa*
 - B. *Staphylococcus aureus*
 - C. *Streptococcus pneumoniae*
 - D. *Candida albicans*
 - E. *Streptococcus diabeticus*
-

222.

A 65-year-old salt water fisherman in Galveston, Texas, is brought to the emergency department with fever and lethargy. He was well until 3 days ago, when he started having fever and shaking chills. He took acetaminophen and ibuprofen but did not get any better. Today, he became confused, and so he was brought in by his wife. He has chronic hepatitis C but has refused therapy to date. His diagnosis was made when he had an acute attack of jaundice 3 years ago.

PAST MEDICAL HISTORY: Vietnam veteran; had malaria in 1961

SOCIAL HISTORY: Lives with wife in a small apartment
Drinks a fifth of vodka a week
Smokes 2 packs of cigarettes daily

PHYSICAL EXAMINATION: BP 100/60, Temp 104° F, P 120, RR 25
General: He is lethargic and confused
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple; no meningismus
Heart: RRR with I/VI systolic ejection murmur
Lungs: CTA
Abdomen: Liver down 4 cm
Extremities: Scratches noted on legs and arms
Skin: Numerous spider angiomas noted on trunk
Several 2-cm bullous lesions noted on the trunk; appear to contain fluid

Which of the following is the most likely diagnosis?

- A. Invasive *Streptococcus pyogenes* infection
- B. *Staphylococcus aureus*
- C. Malaria
- D. *Vibrio vulnificus*
- E. Leptospirosis

223.

A 30-year-old man comes to the emergency department with increasing inability to walk without holding on to something. He denies any other complaints.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Works as a bellhop in a local hotel
Admits to having multiple sexual partners (both male and female)
Smokes 2 packs/day of cigarettes
Drinks a 6-pack of beer daily

FAMILY HISTORY: Noncontributory

PHYSICAL EXAMINATION: BP 130/70, P 90, Temp 99° F, RR 18

HEENT: PERRLA, EOMI
 TMs clear
 Throat clear

Neck: Supple; no meningismus

Heart: RRR without murmurs, rubs, or gallops

Lungs: CTA

Abdomen: Bowel sounds present, no hepatosplenomegaly

Extremities: Benign

GU: No lesions

Neurologic: Romberg sign is present; possible decreased position sense in lower extremities

LABORATORY:

MRI of head: Normal

WBC: 2500/cu mm; 60% polys, 30% lymphs

CD4: 160/cu mm

HIV ELISA: Pending

Electrolytes: Normal

Renal panel including creatinine BUN: Normal

Serum VDRL: Positive at 1:32

Serum fluorescent treponemal antibody test (FTA-ABS): Positive

LP Results are below:

CSF WBC: 50 WBCs/cu mm; 65% lymphocytes

CSF Protein: 150 mg/dL

CSF Glucose: 60 mg/dL (plasma glucose 90 mg/dL)

CSF VDRL: Negative

Based on your findings, which of the following is the appropriate treatment?

- A. Benzathine penicillin G, 2.4 million units IM, single dose
 - B. Benzathine penicillin G, 2.4 million units IM, q week x 3 weeks
 - C. Penicillin G, 3 million units intravenously q 4 hours
 - D. Penicillin G, 1 million units intravenously q 6 hours
 - E. Vancomycin, 1 gram intravenously q 12 hours and ceftriaxone, 2 grams IV q 24 hours
-

224.

A 60-year-old woman with AML is undergoing chemotherapy. She finished her current round of chemotherapy 2 weeks ago and has been neutropenic for about a week. She was admitted last week with fever and has been on piperacillin/tazobactam and ciprofloxacin for this time period. Today, a blood culture from 3 days ago is growing a yeast subsequently determined to be *Candida krusei*. CT of the abdomen shows no lesions. She had a central venous catheter placed 2 weeks ago with her chemotherapy.

PHYSICAL EXAMINATION: BP 130/70, P 80, RR 18, Temp 102° F

General: Well appearing; mild distress with fevers and chills

HEENT: PERRLA, EOMI
 Discs examined by ophthalmologist and are normal
 Throat clear; no thrush

Heart: RRR without murmurs, rubs, or gallops

Lungs:	CTA
Abdomen:	Bowel sounds present; no hepatosplenomegaly
Extremities:	No rashes; no cyanosis, clubbing, or edema
GU:	Normal; no rectal abscesses
Skin:	Insertion site for central venous catheter looks clean and nontender; no evidence of infection

Which of the following do you recommend?

- A. Change the catheter site; add intravenous fluconazole.
 - B. Change the catheter site; add caspofungin.
 - C. Do not change the catheter site; add caspofungin.
 - D. Do not change the catheter site; add intravenous fluconazole.
 - E. Continue current therapy; *Candida krusei* is a contaminant.
-

225.

A 35-year-old man underwent a heart transplant 5 days ago. He is receiving immunosuppressive therapy with methylprednisolone, cyclosporine, and azathioprine. Today, he develops a temperature of 102° F.

PHYSICAL EXAMINATION: Ill-appearing man on the ventilator since surgery
BP 130/50, Temp 102° F, RR 30, P 100

SIGNIFICANT FINDINGS: Chest: Crackles and rhonchi heard over the right lung fields

LABORATORY: Tracheal secretions are now yellow
FiO₂ requirements have increased from 35% to 50%
Pulmonary artery wedge pressure is 15 mmHg (normal 6–12)
WBC: 17,000/cu mm with 90% neutrophils
CXR: Dense consolidation in right middle and lower lobes

Which of the following is most likely the etiology for his pneumonia?

- A. *Legionella pneumoniae*
 - B. *Pneumocystis jiroveci*
 - C. CMV
 - D. *Pseudomonas aeruginosa*
 - E. *Cryptococcus neoformans*
-

226.

A 40-year-old man is followed for tuberculosis. He began therapy about 1 month ago and is taking the standard 4-drug regimen of INH, rifampin, pyrazinamide, and ethambutol. He is in for routine screening lab, because he had some abnormal liver function tests at the time of his initial diagnosis. Everything is normal except for a uric acid of 11 mg/dL.

Which of the following drugs is most likely responsible for this finding?

- A. INH.
 - B. Rifampin.
 - C. Pyrazinamide (PZA).
 - D. Ethambutol.
 - E. None of these is responsible.
-

227.

A 20-year-old man came to you with a 1-week history of fever, chills, and left eye conjunctivitis with an associated pre-auricular lymph node. He reported that he was well until this episode. He lives at home with a dog and 3 cats. None of the pets have been ill.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Works as a veterinarian's assistant; recently, was bitten by a turtle and a rabbit

PHYSICAL EXAMINATION: Besides the lymph node and the non-purulent conjunctivitis, everything else is normal

He was started on oral cephalexin. He returns 3 days later with no improvement. A surgery colleague sees him and performs a biopsy, which shows necrotizing granuloma without organism. Acid-fast stains are negative.

The most likely organism causing this picture is which of the following?

- A. *Borrelia burgdorferi*
 - B. *Bartonella henselae*
 - C. Herpes simplex 1 virus
 - D. *Staphylococcus aureus*, methicillin-resistant
 - E. *Aeromonas hydrophilia*
-

228.

A 28-year-old woman has a history of AIDS for the past 3 years. She presents to you with a 1-week history of "floaters" in her right eye. She came today because she noted blurred vision in that eye since awakening this morning.

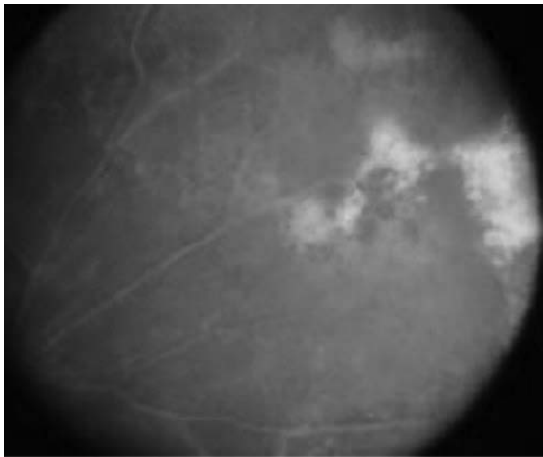
PAST MEDICAL HISTORY: Diagnosed with HIV 3 years ago with PCP presentation; currently on zidovudine, lamivudine, efavirenz, and trimethoprim/sulfamethoxazole prophylaxis; has not had any problems since her diagnosis 3 years ago

SOCIAL HISTORY: Works as a cafeteria worker at the local elementary school
Former boyfriend was an IV-drug abuser

PHYSICAL EXAMINATION: BP 110/70, P 80, RR 18, Temp 98.8° F
HEENT: PERRLA, EOMI
 Discs: Normal on undilated examination
 Central visual acuity is preserved
 Anterior chamber appears clear
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present; no hepatosplenomegaly

LABORATORY: CD4: 30/cu mm
 Viral load 50,000 copies/mL

A photo taken by the ophthalmologist is shown in this figure (see Appendix B color image Figure 10):



Which of the following is the most likely diagnosis?

- A. *Pneumocystis jiroveci* retinitis
- B. *Toxoplasma* chorioretinitis
- C. Cytomegalovirus retinitis
- D. Neurosyphilis
- E. HIV retinopathy

229.

A 45-year-old man underwent prosthetic mitral valve replacement 6 weeks ago. He comes in today with fever and chills and is found to have a vegetation on the annulus of the prosthetic valve.

Which of the following organisms would be the most common cause endocarditis in this patient?

- A. Staphylococcal species
- B. Viridans streptococci
- C. Enteric gram-negative rods
- D. Anaerobes
- E. *Candida* species

230.

An 18-year-old man lives in rural Arkansas. He is not a hunter. He works on a farm and has numerous animals, including rabbits, chicks, ducks, chinchillas, and sheep. He presents with a 2-week history of fever, night sweats, and malaise. He has noted a painful swelling in his right axilla for the past week. He had some “leftover” dicloxacillin and started taking it about 3 days ago but has not improved.

PAST MEDICAL HISTORY: Negative; 1st visit to the doctor since he was 12 for a broken collarbone
Due for Tdap now

SOCIAL HISTORY: As above
Lives on the farm with his 2 brothers
Doesn't drink or smoke
Chews tobacco

PHYSICAL EXAMINATION: BP 110/70, P 110, RR 18, Temp 103° F
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: No hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema
4 x 3-cm left axillary lymph node; tender
No skin lesions

LABORATORY: WBC: 17,000 with left shift

To confirm your diagnosis, which of the following is the best course?

- A. Biopsy of lymph node
- B. Gram stain of lymph node aspirate
- C. Culture of lymph node aspirate
- D. Assay for acute and convalescent titers
- E. Febrile agglutinins

231.

A 72-year-old Caucasian male presents with a 3-day history of fever, malaise, and myalgias. He recently returned from a trip to Missouri, where he reports being bitten by a tick approximately 10 days ago. He was there on a fishing trip. He is healthy otherwise and reports that he was doing well.

PAST MEDICAL HISTORY: No medications

SOCIAL HISTORY: Retired from a medical publishing firm
Never smoked
Drinks 2 glasses of wine on the weekends

FAMILY HISTORY:	Negative
REVIEW OF SYSTEMS:	No rash No joint manifestations No conjunctivitis No lymphadenopathy
PHYSICAL EXAMINATION:	BP 120/70, P 100, RR 18, Temp 103° F
HEENT:	PERRLA, EOMI TMs clear Throat clear
Neck:	Supple
Heart:	RRR without murmurs, rubs, or gallops
Lungs:	CTA
Abdomen:	Bowel sounds present; no hepatomegaly; spleen tip 2 cm below left costal margin
Extremities:	No cyanosis, clubbing, or edema
LABORATORY:	WBC: 2,200 with 60% polys, 20% bands Hemoglobin: 12.5 mg/dL Platelets: 140,000/cu mm AST: 150 IU/L ALT: 140 IU/L

Based on your history, physical, and laboratory values, which of the following is the most likely etiology?

- A. Tularemia
- B. Ehrlichiosis
- C. Histoplasmosis
- D. Blastomycosis
- E. Lyme disease

232.

A previously healthy 24-year-old Caucasian woman comes to your office for evaluation of joint pain and fever. She had been well until 3 days ago, when pain and swelling developed in the left knee and right ankle. Skin lesions also appeared, primarily on the extremities. The patient has a dozen sexual partners, who are reported to be healthy. On physical examination, temperature is 38.2° C (100.8° F). Approximately 5 papulopustular skin lesions are present on the extremities; a few are also noted on the lower torso. There is tenderness with mild swelling in several joints, including the right knee, and the left wrist and the base of the right thumb are tender.

Based on your findings, which of the following is the most likely organism responsible?

- A. *Neisseria gonorrhoeae*
- B. *Chlamydia trachomatis*
- C. HIV
- D. *Streptococcus pyogenes*
- E. *Borrelia burgdorferi*

233.

A 50-year-old Hispanic man comes to your office because of a 2-week history of fever, sore throat, shortness of breath, nonproductive cough, and vague pleuritic chest discomfort. He also has had swelling in the neck and night sweats for 3 months. He has not consumed unpasteurized milk products. He has 15 healthy pet cats.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Denies IV-drug use
Admits to homosexual activity
Drinks tequila—a 1/2 pint daily
Doesn't smoke

PHYSICAL EXAMINATION: Temp 102° F, P 110, RR 28, BP 135/90 mmHg
HEENT: PERRLA, EOMI
TMs clear
Throat: Oral candidiasis
Neck/Lymph: 5 x 5-cm firm, rubbery, non-fixed lymph nodes in the right supraclavicular fossa; 1-cm nodes are noted in the anterior and posterior cervical chains, axillae, and inguinal areas
Heart: RRR with I/VI flow type murmur
Lungs: Bibasilar crackles
Abdomen: Bowel sounds present; liver span 15 cm
Extremities: No cyanosis, clubbing, or edema
LABORATORY: Chest X-Ray: Bilateral lower lobe interstitial infiltrates and right paratracheal and bilateral hilar lymph node enlargement
Hemoglobin: 13 g/dL
WBC: 4,500/cu mm
HIV ELISA: Positive
HIV Western blot: Pending
CD4 lymphocyte: 45/cu mm
Serum bilirubin: 1.8 mg/dL
AST: 250 U/L
pH: 7.43
PO₂: 64 mmHg
PCO₂: 33 mmHg

Which of the following is most likely responsible for his illness?

- A. *Bartonella henselae*
- B. *Pneumocystis jiroveci*
- C. *Rhodococcus equi*
- D. *Mycobacterium tuberculosis*
- E. *Coccidioidomycosis*

234.

A 65-year-old woman has a 30-year history of insulin-dependent diabetes mellitus. She is currently in the hospital for pneumonia due to *Streptococcus pneumoniae*. A colleague admitted her, and you are covering the weekend. You notice that she still has an indwelling Foley catheter that has been in since her admission 5 days ago through the emergency department. You remove the catheter and send a urinalysis. She complains of dysuria but is afebrile.

PAST MEDICAL HISTORY: Negative except for above

SOCIAL HISTORY: Works as a librarian in the medical school library
Lives with her partner, Louise
Drinks 1 beer a day for 40 years
Doesn't smoke

PHYSICAL EXAMINATION: Improving pneumonia with decreased crackles in right base; otherwise unremarkable

LABORATORY: Urinalysis: 100 WBCs/hpf
Gram stain shows numerous neutrophils with budding yeast; no bacteria
Serum creatinine is 1.5 mg/dL

Which of the following is the most appropriate management?

- A. Oral fluconazole
- B. Intravenous fluconazole
- C. Re-insertion of the indwelling urethral catheter for bladder irrigation of amphotericin B
- D. Intravenous amphotericin B
- E. Oral amphotericin B

235.

A 25-year-old man with a history of IV drug abuse is admitted with fever, malaise, headache, and weakness. He denies other symptoms at this time. He has not been in the hospital before.

PAST MEDICAL HISTORY: Negative; admits to using IV drugs for 5 years and currently still using

SOCIAL HISTORY: Works at a local restaurant as a cook
Drinks two 6-packs of beer on the weekends
Smokes 1 pack of cigarettes daily

FAMILY HISTORY: Father 50 and healthy
Mother 50 and healthy

REVIEW OF SYSTEMS: Weight loss of 10 lbs noted for the past 2 months
Chronic "smoker" morning cough
Occasional night sweats

PHYSICAL EXAMINATION: BP 98/70, RR 30, Temp 102° F, P 110
HEENT: PERRLA, EOMI
TMs clear
Throat slightly erythematous
Neck: Supple; no lymphadenopathy noted
Heart: RRR without murmurs, rubs, or gallops
Lungs: Coarse breath sounds; clear with cough
Abdomen: Bowel sounds present; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema

LABORATORY: Blood cultures grow *Salmonella enterica*, serotype *typhimurium*

You start him on intravenous ceftriaxone initially and then change him to oral ciprofloxacin 750 mg twice daily to complete a 2-week course. He follows up as an outpatient at the end of therapy and is doing well. However, 4 weeks later, he returns with the same symptoms, and blood cultures grow *Salmonella enterica*, serotype *typhimurium* again.

Which of the following diagnostic tests should you order at this time?

- A. Quantitative serum immunoglobulins
- B. CT scan of the head
- C. HIV ELISA
- D. Intravenous urography
- E. Bone marrow biopsy

236.

An 84-year-old man comes to the emergency department because of jaw tightness and neck stiffness. About a week ago, he had a minor injury to his left thigh—his grandson jabbed a pitchfork into his thigh while cleaning out the barn. He applied local care and pretty much ignored the wound as it healed. He takes no medications.

PAST MEDICAL HISTORY: Pneumonia at age 36
Healthy since the pneumonia

SOCIAL HISTORY: Lives alone on his farm

FAMILY HISTORY: Negative

PHYSICAL EXAMINATION: Significant aspects: He is alert and oriented to person, place, and time
All vital signs are normal
On mouth exam: He cannot open it completely
Pupils react normally and extraocular movements are intact
Neck is stiff
Abdomen is tense; you note that all of the muscles of his abdominal wall are rigid
His extremities exam is remarkable for all of the muscles of his extremities being rigid
During the exam, especially with his reflexes, you note tonic-clonic motor activity

While examining him, a loud, boisterous nurse walks in and startles you both; he develops opisthotonic posturing with flexion of the arms and extension of his legs. He does not lose consciousness but experiences severe pain with this episode.

Of the following, what is the likely etiology for this man's condition?

- A. *Clostridium botulinum*
- B. *Fusobacterium necrophorum*
- C. *Clostridium septicum*
- D. *Clostridium tetani*
- E. *Corynebacterium diphtheriae*

237.

A 30-year-old woman is found to be HIV-seropositive. She has no medical complaints. She was diagnosed on routine screening while donating blood. Her physical examination is normal, except she has noticed that she bruises more easily than normal.

LABORATORY:	WBC:	3,500/cu mm; 60% polys, 30% lymphocytes
	Hemoglobin:	13 mg/dL
	Platelet count:	40,000/cu mm
	CD4 count:	250 cells/microL
	HIV viral load:	150,000 copies

Bone marrow examination is requested.

Which of the following should you do now?

- A. Begin combination antiretroviral therapy.
- B. Begin corticosteroid therapy.
- C. Begin intravenous gamma globulin therapy (IVIG).
- D. Begin trimethoprim/sulfamethoxazole.
- E. Infuse platelets.

238.

A 26-year-old African-American woman with transfusion-dependent sickle cell disease presents with a 1-week history of fever, malaise, nausea, diarrhea, and cramping abdominal pain. She receives deferoxamine on a daily basis because of severely high ferritin levels.

PAST MEDICAL HISTORY: Recurrent transfusions and use of deferoxamine

SOCIAL HISTORY: Unremarkable

FAMILY HISTORY: Unremarkable

PHYSICAL EXAMINATION: BP 95/50, P 130, RR 38, Temp 101.5° F

HEENT: Marked scleral icterus
PERRLA, EOMI
TMs clear
Throat clear
Neck: Supple
Heart: RRR with II/VI systolic murmur at apex
Lungs: Bilateral crackles in both bases with occasional faint wheeze
Abdomen: Liver is 12 cm in span; no spleen palpated
Extremities: No cyanosis, clubbing, or edema

Which of the following organisms is the most likely to be growing in her blood cultures?

- A. *Escherichia coli*
 - B. *Yersinia enterocolitica*
 - C. *Klebsiella pneumoniae*
 - D. *Haemophilus influenzae*
 - E. *Francisella tularensis*
-

239.

A 50-year-old nurse whom you have been following while on isoniazid (INH) prophylaxis therapy presents today for routine follow-up. She had a PPD conversion about 3 months ago. Active disease was ruled out, and she was started on INH 300 mg daily. Today, she is returning for a routine checkup and has no complaints. Her physical examination is completely normal. Laboratory testing shows a serum AST of 154 U/L (upper limit normal 40) and a serum ALT of 100 U/L (upper limit normal 56). The rest of her blood tests are normal.

Which of the following choices is most appropriate at this time?

- A. Continue INH; add pyridoxine supplementation.
 - B. Discontinue INH; repeat liver tests in 2 weeks; if normal, restart INH.
 - C. Stop INH; start rifampin instead.
 - D. Stop INH; start ethambutol, which has little liver toxicity.
 - E. Continue INH; repeat serum aminotransferase measurements in 1 month or sooner if clinically warranted.
-

240.

A 23-year-old woman who is in her 2nd month of pregnancy is referred to you by her obstetrician for evaluation of the following laboratory values. She feels well and has never had jaundice that she knows of.

LABORATORY: AST 19 U/L
ALT 25 U/L
Serum alkaline phosphatase 110 U/L
Serum total bilirubin 0.5 mg/dL
Hepatitis B surface antigen (HBsAg): Positive
Antibody to hepatitis B surface antigen (anti-HBs): Negative
IgM antibody to hepatitis B core antigen (IgM anti-HBc): Negative
Hepatitis B e antigen (HBeAg): Negative
IgG antibody to hepatitis B core antigen (IgG anti-HBc): Positive

The newborn of this woman should receive which of the following?

- A. Hepatitis B vaccine only
- B. Hepatitis B immunoglobulin at birth; then hepatitis B vaccine at 2 months of age
- C. Both hepatitis B vaccine and hepatitis B immunoglobulin at birth
- D. Alpha-interferon and ribavirin
- E. No vaccine until 2 months of age

241.

A 50-year-old man fishes regularly on the Chesapeake Bay. Three weeks ago he was listening to the radio and was distracted. On that day, he caught some crabs, and one of the crabs scratched him on his arm with one of its claws. Over the next 2 weeks, he developed progressive painful swelling of the wound site. He took aspirin and ibuprofen without relief. His wife had some leftover dicloxacillin that he took, which also did not improve his condition. His physical examination is really unremarkable except for marked swelling and induration of the scar area on the side of his left arm. He does not drink alcohol or smoke.

Which of the following organisms is most likely the cause of his illness?

- A. *Streptococcus pyogenes*
- B. *Clostridium septicum*
- C. *Mycobacterium marinum*
- D. *Staphylococcus aureus*
- E. *Bartonella crustacea*

242.

A previously healthy 45-year-old man comes to the emergency department with a history of headache and fever, which he has had for about a day and a half. His wife reports that he has been confused and, at times, she is not able to understand what he is saying. This has progressively gotten worse in the past few hours. They are “outdoorsy” people and camp quite a bit in the Ozark Mountains in Missouri and Arkansas.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Airline pilot; no travel outside of U.S.

FAMILY HISTORY: Father with Alzheimer’s at age 60
Mother healthy

PHYSICAL EXAMINATION: BP 110/70, P 100, RR 18, Temp 102° F
Oriented only to person; does not know where he is or the current year
HEENT: PERRLA, EOMI
TMs clear
Throat clear
Neck: Stiff with meningismus
Heart: RRR without murmur, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present; no hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema

Skin: No rash
Neuro: Normal other than mental status testing

CT without contrast preliminary results: no infarct; ventricles normal
EEG shows abnormalities in the right temporal lobe area

Lumbar puncture results: WBC: 220 WBC/cu mm (30% polys; 70% lymphs)
RBC: 400 RBC in tube 1
RBC: 300 RBC in tube 4
Protein: 65 mg/dL (normal)
Glucose: 80 mg/dL with serum of 120 mg/dL
Gram stain of CSF: No organisms seen
Acid-fast stain: No organisms seen
Cryptococcal antigen assay on CSF: Negative

Which of the following is the most likely cause of his illness?

- A. *Borrelia burgdorferi*
 - B. *Francisella tularensis*
 - C. *Listeria monocytogenes*
 - D. *Streptococcus pneumoniae*
 - E. Herpes simplex virus
-

243.

A 79-year-old man has a right hip prosthesis. Ten months after his prosthesis is placed, he complains of persistent pain that has not improved since his surgery. He has tried ibuprofen without relief. For the last few weeks, the pain has worsened to the point that he will not get out of bed unless his grandchild helps him. He has not had any fevers during this time.

PAST MEDICAL HISTORY: Lung cancer diagnosed 20 years ago; had resection and cure
Hypothyroidism for 30 years; on replacement therapy
Hypertension for 50 years; on ACE inhibitor for 10 years with good control

SOCIAL HISTORY: Lives with his granddaughter and her 3 kids
Doesn't smoke or drink

PHYSICAL EXAMINATION: BP 130/70, P 80, RR 18, Temp 99° F
HEENT: PERRLA, EOMI
Throat clear
Neck: Supple
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Benign
Extremities: Normal muscle strength
Range of motion in right hip is diminished compared to the left; severe pain produced with movement
Neurovasculature is intact

Plain films of hip: Lucency of the right hip located where the prosthesis and the femur interact

Which of the following is the next step in workup?

- A. Begin oral dicloxacillin.
 - B. Begin oral gatifloxacin.
 - C. Fluoroscope-guided aspiration of the hip.
 - D. Technetium^{99m} bone scan.
 - E. Blood culture.
-

244.

A 40-year-old woman is vacationing in Acapulco, Mexico. She eats salad and tacos at a local café and drinks multiple margaritas during her stay. While on the trip, she develops watery, nonbloody diarrhea. Additionally, she has cramping abdominal pain that is relieved with a bowel movement. She has low-grade temperatures between 99° and 100° F for a day or two. Her symptoms resolve without any treatment after 4 days of illness. You see her in follow-up after the trip. Her physical examination is normal. She has no symptoms now.

Which of the following organisms was most likely responsible for her illness?

- A. Enterotoxigenic *Escherichia coli*
 - B. *Escherichia coli* O157:H7
 - C. *Campylobacter jejuni*
 - D. *Shigella sonnei*
 - E. Rotavirus
-

245.

A 20-year-old Mexican-American man is brought into the emergency department with a seizure. This is his first known seizure, and he has been in excellent health in the past—he runs marathons for the Mexican Olympic team.

PAST MEDICAL HISTORY: Negative
 Immunizations up-to-date, including 2nd MMR and hepatitis B

SOCIAL HISTORY: Lives with relatives in San Diego
 Works as a courier for an express mail company

FAMILY HISTORY: Mother and father both healthy; live in small community outside of Mexico City

REVIEW OF SYSTEMS: Completely negative

PHYSICAL EXAMINATION: BP 120/70, RR 16, Temp 98.6° F, P 50

 HEENT: PERRLA, EOMI
 TMs clear
 Throat clear

 Neck: Supple; no masses

 Heart: RRR without murmurs or rubs; healthy gallop

 Lungs: CTA

 Abdomen: Benign

 Extremities: Normal, no rashes

LABORATORY: CT of head: 8 cystic lesions, 1 cm to 3 cm in diameter; 2 of the lesions enhancing slightly with contrast
HIV ELISA: Negative
CD4: 2,000/cu mm

Which of the following is the most likely diagnosis?

- A. *Toxoplasma gondii*
 - B. Cryptococcal meningitis
 - C. Neurocysticercosis
 - D. Lymphoma
 - E. Herpes simplex virus
-

246.

A 35-year-old man comes to the emergency department because of malaise, fever, chills, and a diffuse rash that he has had since awakening this morning. He is a mailman and was bitten by a dog 1 week ago. Subsequently, he noted some pain, redness, and discharge from the bite wound.

PHYSICAL EXAMINATION: BP 80/60, P 120, RR 40, Temp 104° F
HEENT: PERRLA, EOMI
Conjunctivitis is noted
Throat: Tongue is beefy red and he has large papillae
Neck: Supple
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Benign
Skin: Diffuse, pink rash with blotches is noted over his entire body
A yellowish fluid is draining from his bite wound

LABORATORY: WBC: 20,000/cu mm; 50% polys, 29% bands
Hemoglobin: 12.5 mg/dL
Platelets: 55,000/cu mm
BUN: 70 mg/dL
Creatinine: 5.0 mg/dL
AST: 500 U/L
Serum albumin: 2.2 g/dL
Urinalysis: 3+ proteinuria

Which of the following is the most likely organism responsible?

- A. *Neisseria meningitidis*
 - B. *Eikenella corrodens*
 - C. *Pasteurella multocida*
 - D. *Staphylococcus aureus*
 - E. *Bartonella henselae*
-

247.

A 23-year-old woman comes to your office after being told by a local physician that she is HIV-infected. She had been tested as part of a routine physical examination. She has never injected intravenous drugs and has had sexual intercourse in her lifetime with only 4 men, each of whom reportedly has never used drugs and is healthy.

At the time of physical examination, she is very anxious and tearful. Her complete physical examination is normal except for 2 lymph nodes in her posterior cervical chain that measure 0.3 x 0.5 cm.

Her previous test results from her doctor show an HIV ELISA that is positive and a Western blot assay that is “indeterminate.” You repeat her Western blot assay 3 months later, and it shows no bands (negative). A repeat Western blot assay at 6 months shows no bands (negative).

Which of the following is the best interpretation of her initial lab result that prompted her to see you?

- A. Early HIV-1 infection.
 - B. Resolved HIV-1 infection.
 - C. HIV-2 infection.
 - D. She has HIV; the Western blots are now false negatives because of her advanced disease.
 - E. False-positive HIV ELISA for HIV-1.
-

248.

A 30-year-old man will be traveling to rural areas of Africa for a year. His medical history is unremarkable. His physical examination is normal. He will be outside in the sun for many hours daily. His trip begins in 2 weeks.

Based on this limited information, which of the following agents would be best for him to take for antimalarial chemoprophylaxis?

- A. Chloroquine 500 mg (300 mg base): 1 tablet weekly beginning 1 week before departure, and continuing during travel until 4 weeks after return.
 - B. Mefloquine (250 mg): 1 tablet weekly beginning 2 weeks before departure, and continuing during travel until 1 week after return.
 - C. Atovaquone/proguanil (250 mg/100 mg): 1 tablet daily beginning 1 day before departure, and continuing during travel until 1 week after return.
 - D. Doxycycline (100 mg): 1 tablet daily beginning 1–2 days before departure, and continuing during travel until 1 week after return.
-

249.

A 16-year-old female is referred to you by her school nurse because of persistent vaginal discharge. She has had several episodes in the past 2 years that have been self-diagnosed as yeast infections. They have always responded to over-the-counter medications such as clotrimazole. She is a sexually active student who has had multiple male sexual partners in the past. Currently, she has been having sex with 2 different male partners—one on Friday nights and one on Saturday nights. These 2 partners and all previous partners she reports as being “healthy.” Recently, she completed another course of topical anti-fungal therapy with no improvement in her discharge. She denies history of vaginal lesions or vesicles.

PAST MEDICAL HISTORY: Currently on oral contraceptives

SOCIAL HISTORY: Doesn't drink or smoke

PHYSICAL EXAMINATION: Completely normal except for slight yellow discharge from the cervical os

Management of this young woman should include which of the following:

- A. Pap smear, RPR, HIV testing and counseling, and HSV culturing.
 - B. Pap smear, RPR, HIV testing and counseling, and culture for *Gardnerella vaginalis*.
 - C. Pap smear, RPR, HIV testing and counseling, and gonorrhea and *Chlamydia* culturing.
 - D. Pap smear, RPR, HIV testing and counseling, and culture for *Candida*.
 - E. Pap smear, RPR, HIV testing and counseling, no culture needed, and just treat for *Candida*.
-

250.

A 30-year-old man works as a nurse on the wards in your hospital. He spilled a urine specimen from an HIV-infected patient on his hands 30 minutes ago. The patient has end-stage AIDS with a CD4 count of 1/cu mm and a viral load of 1 million copies/cc. The patient has been on zidovudine/lamivudine/indinavir for the past year with failure noted because of poor adherence to the regimen, although a recent genotype showed resistance patterns developing to zidovudine and indinavir! The patient is hepatitis B-surface-antigen-negative, and the nurse has received a series of 3 doses of hepatitis B vaccine, which was completed last year when he finished nursing school.

The nurse notes that he has a healing laceration from a cat scratch on his left hand, and that the urine splashed onto this lesion. The lesion is well scabbed over. As soon as he spilled the urine on his hands, he scrubbed them meticulously.

Which of the following do you recommend for this nurse?

- A. A regimen of using agents other than zidovudine and indinavir is indicated because of the known resistance patterns.
 - B. Zidovudine, lamivudine, and indinavir for 4 weeks.
 - C. Lamivudine alone is sufficient.
 - D. Test the remaining urine for HIV RNA and start treatment if the viral load is detectable.
 - E. No prophylaxis is indicated.
-

251.

A 55-year-old man comes to the night clinic with a history of acute onset of nausea, severe headache, and facial flushing. He says that the symptoms began while he was sitting at home drinking a beer. On further questioning, you discover that he is receiving an outpatient intravenous antibiotic for a wound infection.

Which of the following antibiotics is most likely responsible?

- A. Ceftriaxone
- B. Cefotetan
- C. Imipenem
- D. Clindamycin
- E. Piperacillin/tazobactam

252.

A 28-year-old man is referred to you because he is found to be seropositive for Epstein-Barr virus. For a year he has had difficulty falling asleep, as well as frequent awakening during the night. He has had increasing problems with daytime fatigue and reports that he can't concentrate as well. He has lost interest in his hobbies; he used to enjoy playing basketball avidly. He has gained 20 lbs in the last year and says that he "just doesn't feel like exercising."

PAST MEDICAL HISTORY: Negative; started coming to the local physician about 1 year ago with sleep disturbances

SOCIAL HISTORY: Divorced about 2 years ago
Has 2 children; wife has custody
"Recovered alcoholic"; hasn't had a drink in 5 years
Smokes 1 pack of cigarettes daily
No illicit drug use

FAMILY HISTORY: Mother age 60; history of depression
Father age 60; hypertension

REVIEW OF SYSTEMS: No fever
No chills
No sore throat
No lymph node enlargement noted
No diaphoresis
No cough
No palpitations
No constipation
No diarrhea
No risk factors for HIV

PHYSICAL EXAMINATION: BP 120/70, P 90, RR 18, Temp 99° F
Ht. 5' 10" Wt. 190 lbs (moderate truncal obesity)
HEENT: PERRLA, EOMI
TMs clear
Throat clear; no erythema; no obvious dental caries noted
Neck: Supple
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: Bowel sounds present; liver span 6 cm; no spleen palpated
Extremities: No cyanosis, clubbing, or edema

LABORATORY: CBC: Normal
Electrolytes: Normal
Liver enzymes and panel: Normal
EBV titers: Only positive is EBV viral capsid (VCA) specific IgG antibody titer at 1:160

Based on your findings, which of the following do you think he needs?

- A. Measurement of T-lymphocytes.
 - B. Check EBV DNA viral load.
 - C. CMV testing.
 - D. Referral to an infectious disease specialist for evaluation of chronic EBV syndrome.
 - E. No further infectious workup is indicated.
-

253.

A 34-year-old patient with HIV presents with cough, dyspnea, and bilateral infiltrates. A presumptive diagnosis of PCP is made, and he is treated with trimethoprim/sulfa and prednisone. In addition, he is noted to have oral candidiasis, and fluconazole is given. Labs obtained 48 hours after admission: Na 133, K 7.0, Cl 100, HCO₃ 23, BUN 20, Cr 1.2.

Of the following, what is the most likely cause for the hyperkalemia?

- A. Trimethoprim/sulfamethoxazole
 - B. Prednisone
 - C. Fluconazole and prednisone
 - D. Fluconazole
 - E. Adrenal insufficiency
-

254.

You are called to evaluate a 74-year-old man with Parkinson disease. He has been hospitalized twice in the last year for urosepsis. Because of incontinence, he has required a chronic indwelling urinary catheter. He is currently afebrile and has no abdominal pain. He has had no mental status changes or recent falls. Lab work from 48 hours ago includes: WBC 8,000, Hct 42%, Na 137, K 3.6, BUN 20, Cr 1.2, and urine culture > 100,000 colonies of *Enterococcus*.

Of the following, what therapy do you recommend?

- A. Ceftriaxone + gentamicin
 - B. No therapy at this time
 - C. Ampicillin + gentamicin
 - D. Ciprofloxacin
 - E. Amoxicillin
-

255.

Which of the following is true about angiotensin-converting enzyme inhibitors?

- A. Not likely to lower blood pressure in patients with renal artery stenosis
 - B. Not associated with angioedema
 - C. Associated with cough
 - D. Unable to prevent progressive renal dysfunction in patients with Type 1 diabetes mellitus
 - E. Frequently stopped for hyperkalemia
-

256.

A 62-year-old man with history of aortic stenosis is admitted with complaints of fever and chest discomfort. He denies cough, dysuria, skin rash, or other localizing signs of infection. On physical examination, his murmur, previously documented at II/VI, is now worse (V/VI). He is febrile and ill appearing. His white blood cell count is 15,000 mm³, with an absolute neutrophil count of 89%. Three of 3 blood cultures are positive for methicillin-resistant *Staphylococcus aureus* (MRSA), susceptible to vancomycin. A transthoracic echocardiography (TTE) is negative for valvular vegetations. Blood cultures remain positive on the 3rd day despite adequate treatment with vancomycin. Vancomycin trough level is 20.

Which of the following is the most appropriate next step?

- Repeat transthoracic echocardiography (TTE).
- Order a transesophageal echocardiography (TEE).
- Continue treatment with vancomycin 2 weeks.
- Change treatment to linezolid x 4–6 weeks.
- Add gentamicin to the vancomycin therapy.

257.

A 72-year-old man with chronic obstructive pulmonary disease, congestive heart failure, and Type 2 diabetes mellitus is admitted to the hospital for treatment of community-acquired pneumonia. He responds slowly to treatment with intravenous levofloxacin 750 mg daily. Prior to discharge, he develops diarrhea (8 watery bowel movements per day), but denies abdominal pain. He is afebrile. Vitals signs are stable. He has no signs of abdominal distension or ileus.

LABORATORY: WBC: 14,500/mm³; hemoglobin: 11; BUN: 16 mg/dL; creatinine: 1.2 mg/dL (was 1.0 mg/dL on admission)
Stool PCR testing for *C. difficile* toxins is positive

Which of the following is the next appropriate step?

- A. Do not give empiric therapy, await stool test results prior to treatment and monitor his progress.
B. Metronidazole 500 mg PO tid x 10 days **or** vancomycin 125 mg PO qid 10 days.
C. Metronidazole 500 mg PO tid x 10 days.
D. Vancomycin 125 mg PO qid x 10 days.
E. Intravenous metronidazole plus intracolonic vancomycin.

258.

A 40-year-old male presented to the emergency department 2 days earlier with a 4-day history of abdominal cramping and bloody diarrhea. He denies any fever or chills. He reports severe abdominal cramping and has had 8–10 small volume bowel movements per day, some of them bloody. He was afebrile, vital signs were stable with a HR = 95 bpm, oral mucosa slightly dry, active bowel sounds, diffuse mild abdominal tenderness without rebound tenderness, and the rest of the physical examination was unrevealing. Labs: WBC: 13,500/mm³; hemoglobin: 14; BUN: 22 mg/dL; creatinine: 1.0 mg/dL. A stool sample was taken and the patient was discharged home with advice for hydration.

The laboratory calls today with reports that the stool cultures are growing *Shigella dysenteriae*. You call the patient and find that he is now asymptomatic.

Which of the following is most correct regarding treatment?

- A. Despite symptom resolution, antibiotic therapy is appropriate to prevent transmission.
 - B. Antibiotic therapy is not appropriate because the patient is now asymptomatic.
 - C. The patient should now have a repeat stool culture done.
 - D. The patient should push hydration for 1 week, then return for a repeat stool culture.
 - E. Empiric therapy should have been started in the emergency department with TMP/SMX.
-

259.

A 25-year-old woman presents with complaints of suprapubic discomfort, dysuria, frequency, and urgency of 3 days duration. She denies vaginal discharge or irritation. She denies any fever or back pain, and she is able to tolerate oral fluids and medications. She had a similar episode 6 months earlier and was diagnosed and treated for uncomplicated urinary tract infection with complete resolution of her symptoms. On physical examination, she is afebrile and is not ill appearing. There is mild suprapubic tenderness, but no CVA tenderness. Urinalysis shows 11–20 leukocytes/HPF. Leukocyte esterase: positive; nitrite: positive. A urine pregnancy screen is negative.

What is the most appropriate next step in the management of this patient?

- A. Oral trimethoprim/sulfamethoxazole 160/800 mg (1 DS tablet) bid x 3 days.
 - B. IV ceftriaxone 1 g IV daily for 10 days.
 - C. Oral ciprofloxacin (500 mg twice daily) for 7 days.
 - D. Reassurance only.
 - E. Urinalysis and urine culture should be performed, and treatment should be delayed until antimicrobial susceptibility results are available.
-

260.

A 34-year-old female is planning to travel to Nigeria, West Africa. She would like to avoid acquiring malaria during her trip.

You advise the patient to avoid mosquito exposure.

In addition, which of the following courses of treatment should be initiated?

- A. Chloroquine 500 mg (300 mg base): 1 tablet weekly beginning 1 week before departure, and continuing during travel until 4 weeks after return.
 - B. Mefloquine (250 mg): 1 tablet weekly beginning 2 weeks before departure, and continuing during travel until 1 week after return.
 - C. Atovaquone/proguanil (250 mg/100 mg): 1 tablet daily beginning 1 day before departure, and continuing during travel until 1 week after return.
 - D. Doxycycline (100 mg): 1 tablet daily beginning 1–2 days before departure, and continuing during travel until 1 week after return.
-

261.

A 19-year-old college student is brought to the emergency department from his college dormitory by emergency medical services because of confusion, fever, headaches, and neck stiffness. On physical examination, his temperature is 101.4° F, blood pressure is 140/80, P 110, and respiratory rate is 25. He is ill-appearing and in moderate-to-severe distress because of his headache. There is resistance to attempted flexion at the neck (nuchal rigidity), as well as pain and resistance on attempting extension of the leg at the knee with the thigh flexed at the hip (Kernig sign). A CT of the head without contrast is normal. Lumbar puncture reveals:

Opening pressure:	240 mm H ₂ O
Appearance:	Cloudy
WBC count:	1,200/mm ³ , 89% PMNS
Glucose:	37 mg/dL
Gram stain:	Gram-negative diplococci

The patient is started on IV cefotaxime for meningococcal meningitis.

Which of the following individuals should receive antimicrobial prophylaxis against meningococcal disease?

- A. The medical student who examined the patient in the emergency department
 - B. The nurse who took the patient's vital signs
 - C. The adjacent students in his school classrooms
 - D. The patient's college dormitory roommate
 - E. The ambulance driver
-

NEPHROLOGY

262.

A 21-year-old man is being evaluated because of increased polyuria and polydipsia.

His laboratory is as follows:

Serum lytes:	Sodium 143 mmol/L, K 4.0 mmol/L, Cl 105 mmol/L, HCO ₃ 25 mmol/L
BUN:	20 mg/dL
Serum glucose:	98 mg/dL
Urine electrolytes:	Na 27 mmol/L, K 33 mmol/L
Urine osmolality:	197 mOsmol/kg water

After 12 hours of fluid deprivation, his body weight has fallen 6 kg! Laboratory testing now shows:

Serum Lytes:	Sodium 152 mmol/L, K 4.2 mmol/L, Cl 110 mmol/L, HCO ₃ 25 mmol/L
BUN:	22 mg/dL
Serum Glucose:	96 mg/dL
Urine electrolytes:	Na 24 mmol/L, K 36 mmol/L
Urine osmolality:	202 mOsmol/kg water

One hour after the subcutaneous administration of 5 units of vasopressin, urine values are as follows:

Urine electrolytes:	Na 30 mmol/L, K 29 mmol/L
Urine osmolality:	198 mOsmol/kg water

Which of the following is the most likely diagnosis?

- A. Salt-losing nephropathy
- B. Osmotic diuresis
- C. Nephrogenic diabetes insipidus
- D. Psychogenic polydipsia
- E. Occult diabetes mellitus

263.

A 50-year-old man presents for evaluation of renal insufficiency and proteinuria after routine blood tests by his primary care doctor 1 month ago. Results showed an elevation in the serum creatinine concentration. He has a 10-year history of diabetes and hypertension. He has been treated for diabetic neuropathy and retinopathy within the past year.

PHYSICAL EXAMINATION: Eye and nerve abnormalities
BP 160/102 mmHg
Mild edema, but otherwise normal

LABORATORY: Sodium 138
Potassium 4.0
Chloride 108
Bicarbonate 20
Creatinine 2.2
(eGFR 41 mL/min/1.73 m² BSA)

BUN 48 mg/dL
Blood sugar 186 mg/dL
Albumin 3.4 g/dL
Urinary protein:creatinine on random urine sample 3.4 g/g

The best next step in his management would be:

- A. Dihydropyridine calcium channel blocker
 - B. Measurement of the fractional excretion of sodium
 - C. Renal biopsy
 - D. Enalapril
-

264.

You are evaluating a 28-year-old male in the clinic with a known history of distal renal tubular acidosis.

Which of the following is a typical feature of Type 1 (distal) renal tubular acidosis?

- A. Diabetes mellitus
 - B. Fanconi syndrome
 - C. Hyperkalemia
 - D. Kidney stones
 - E. Normal anion gap
-

265.

A 52-year-old patient with diabetes mellitus Type 2 for 20 years is seen for follow-up of his renal disease. Five years earlier, he developed proteinuria, and about 1 year ago he developed peripheral edema. His past medical history is significant for laser photocoagulation treatment of both eyes over the past 2 years. His current medications include NPH insulin administered twice per day with sliding scale coverage, lisinopril 40 mg PO daily, furosemide 20 mg PO daily, and aspirin 81 mg PO daily. On physical examination, his blood pressure is 126/84, pulse 84 beats per minute. His funduscopic examination reveals evidence of prior laser phototherapy, his chest is clear to auscultation, and there is no S₃ gallop. He has 1+ edema of his lower extremities.

His hemoglobin is 8.7 mg/dL with a hematocrit of 27.3%, WBC 9.4, sodium 135 mEq/L, potassium 4.8 mEq/L, CO₂ 22 mmol/L, chloride 106 mg/dL, creatinine 3.6 mg/dL, and BUN 42. Iron studies are normal and his recent colonoscopy was unremarkable. Serum albumin is 2.6 U/L, urinalysis reveals 4+ protein with no other abnormalities, and the 24-hour urine collection reveals 6.5 g protein per day with 1.2 g of creatinine.

Ultrasound of the kidneys reveals no evidence of hydronephrosis, and kidney sizes are 11.5–12 cm bilaterally.

Which of the following would be the most appropriate next step in this patient's management?

- A. Discontinue lisinopril.
- B. Refer for hemodialysis.
- C. Refer for renal biopsy.
- D. Begin therapy with recombinant human erythropoietin.
- E. Administer a nonsteroidal antiinflammatory drug.

266.

A 32-year-old motorcycle enthusiast was brought to the emergency department following a collision with a sport utility vehicle. He was trapped under the vehicle and was extracted with the “jaws of life.” He suffered severe injuries to his pelvis and legs and was rushed to the emergency department as soon as he was freed. In the emergency department, his initial blood pressure was 85/palpable with a heart rate of 136/minute. His blood pressure improved with 3 liters of normal saline and 4 units of blood. Further evaluation revealed multiple fractures of his pelvis and both tibias. His initial hemoglobin was 8.9, hematocrit 28.4%; but his electrolytes, urinalysis, and liver function tests were normal. His BUN was 13 and serum creatinine was 1.0. Following an open reduction and fixation of both tibias, he was brought to the SICU for observation. The next day the patient’s urine output began to fall, and his serum creatinine rose to 2.9. His urinalysis revealed specific gravity of 1.010, pH 5.5, 4+ blood, trace protein, 1–2 RBCs per high-power field, and 4–6 granular casts. A CPK was 125,500, K⁺ was 7, and urine myoglobin was pending. His heart rate began to slow and an ECG demonstrated a rate of 45 with no P waves, and widening of the QRS.

Which of the following is the immediate next step in the management of this patient?

- A. Perform fasciotomies.
 - B. Temporary pacemaker placement.
 - C. Administer sodium polystyrene sulfonate enemas.
 - D. Initiate dialysis therapy.
 - E. Administer calcium gluconate.
-

267.

A previously healthy 35-year-old man presents with swelling of his legs over 2 months and a 24-pound weight gain. He takes no medication.

PHYSICAL EXAMINATION: BP 166/104, 4+ edema of his legs extending to his thighs

LABORATORY: Na 135, K 3.8, Cl 100, CO₂ 26, SCr 1.8, BUN 41, serum albumin 2.1
Urinalysis: 4+ protein, no blood, no cells, no casts
Urine protein: 446 mg/dL, urine creatinine 42 mg/dL; HBV, HCV, HIV, ANA were all negative

A renal biopsy was performed and focal segmental glomerulosclerosis is diagnosed. The patient was started on prednisone and lisinopril. The dose was increased to 20 mg/d, and a repeat serum creatinine was 2.0, serum albumin 2.1, with no change in the protein:creatinine ratio after 2 months.

Which of the following statements is correct?

- A. Lisinopril should be stopped because the patient has worsening renal function.
 - B. An angiotensin receptor blocking agent should be added.
 - C. The dose of lisinopril should be increased to reduce proteinuria.
 - D. There is a higher risk of hyperkalemia because the patient has nephrotic syndrome.
-

268.

A 35-year-old woman presents with altered mental status. No medical history is available. Other than being stuporous, her exam is unremarkable with normal vital signs, no orthostasis, no edema, and without focal findings. Her serum sodium is 104 mEq/L, creatinine 0.6 mg/dL, U_{Na^+} 8 mEq/L, and Uosm 90 mOsm/kg H_2O .

Which of the following is true?

- A. Treatment should start with hypertonic saline.
 - B. Her total body sodium is approximately normal.
 - C. She has an excess of antidiuretic hormone.
 - D. Diuretic abuse should be suspected.
 - E. Primary polydipsia is unlikely.
-

269.

A 50-year-old homeless man was brought to the emergency department after the police found him lying in a local park. When he arrived in the emergency department, he awoke and reported that he drank up to a half pint of vodka per day over the past several years and remembered having nausea and vomiting for 2 days but couldn't remember anything about the previous 24 hours. He denied taking any medications and had not had any medical care other than sutures for several lacerations. On physical exam, he had a supine BP of 110/72 and standing it was 90/60 with a pulse of 124/min and a temperature of 38.3° C. He was lethargic, but oriented to person, place, and time. His neck veins were not visible, and he had no ascites or edema. He had no focal neurologic findings.

Admission labs showed a glucose of 64 mg/dL, sodium of 134, potassium of 3.8, chloride of 100, and bicarbonate of 12 mEq/L. Serum creatinine was 0.9 mg/dL and BUN was 9 mg/dL. Urinalysis showed trace protein and no blood. Serum pH was 7.22, pCO_2 was 26, and HCO_3^- was 12. The patient was treated with 0.9 D5 normal saline and admitted to the hospital. Two days later, BP is 124/74 without orthostasis; the patient is awake, alert, and oriented X 3; neck veins are visible, and his serum creatinine is 3.1 mg/dL, BUN 22 mg/dL. Urinalysis, urinary indices, and a renal ultrasound are pending.

What is the most likely cause of his acute kidney injury?

- A. Methanol intoxication
 - B. Acute tubular necrosis secondary to volume depletion
 - C. Acute tubular necrosis secondary to rhabdomyolysis
 - D. Sepsis
 - E. Ketoacidosis secondary to starvation
-

270.

A 24-year-old man with known hearing loss presents for evaluation after he spontaneously passed a kidney stone 2 weeks ago. At this time, the patient feels well and has no complaints. He takes a daily multivitamin that includes fat-soluble vitamins. An uncle also has kidney stones. The patient's physical exam is normal except for his hearing aids. Labs show sodium of 140 mEq/L, potassium of 3.2 mEq/L, chloride of 116, and bicarbonate of 14 mEq/L. Creatinine is 0.8 and BUN is 14 mg/dL. Urinalysis shows urine pH of 6.5 with no protein or blood. Urine electrolytes: sodium 40, potassium 36, and chloride 75 mEq/L.

This patient is most likely to have which of the following disorders?

- A. Type 2 renal tubular acidosis
 - B. Type 1 renal tubular acidosis
 - C. Type 4 renal tubular acidosis
 - D. Primary hyperparathyroidism
 - E. Sarcoidosis
-

271.

A 35-year-old male comes to your clinic for evaluation of high blood pressure. His lab tests demonstrate the following: sodium 138, potassium 3.3, chloride 100, and bicarbonate 35 mEq/L. Urine studies show sodium of 35, potassium of 28, and chloride of 70 mEq/L, with a urine pH of 4.8.

Which of the following is the most likely cause of these abnormalities?

- A. Primary aldosteronism
 - B. Remote diuretic use
 - C. Vomiting
 - D. Volume contraction
-

272.

A 70-year-old woman presents with low-grade temps, arthralgias, and hypertension. She has lost 20 lbs over the past 3 months. Other than a blood pressure of 170/100 mmHg and mild edema, the exam is benign. Laboratory exam shows sodium 138, potassium 4.5, chloride 108, bicarbonate 20 mEq/L, creatinine 2.7, and BUN 45 mg/dL. Urinalysis shows 3+ blood, 3+ protein with RBC casts. Complement studies are normal: ANA is negative; ANCA is + 1:64 MPO (myeloperoxidase) and anti-GBM is negative. Renal biopsy shows negative immunofluorescence with a necrotizing glomerulonephritis. There is minimal interstitial fibrosis and tubular atrophy.

Treatment should be started with which of the following:

- A. Plasmapheresis
 - B. Bed rest and diuretics
 - C. High-dose steroids and azathioprine
 - D. High-dose steroids and cyclophosphamide
 - E. Angiotensin-converting enzyme inhibitor
-

273.

Loop diuretics do all the following except:

- A. Inhibit Na-K-2 Cl transporter in the loop of Henle
- B. Promote potassium loss
- C. Exacerbate hypercalcemia
- D. Increase the risk of gout
- E. Lower blood pressure in patients with renal insufficiency

274.

A severely intellectually disabled 46-year-old is brought to the emergency department by neighbors after being left alone at his group home. He was found in the open garage of his home. He is obtunded and clinically appears intravascularly volume-depleted. His clothing is soiled with stool and urine. He has a significant fall in his blood pressure and increase in his pulse when he is brought to an upright position. Kussmaul respirations are noted. Neurologic exam is non-focal.

Na	133
K	2.5
U/A:	pH 5.0, Na 6 mEq/L, K 12 mEq/L, Cl 24 mEq/L
Cl	118
HCO ₃	5
ABG:	7.25 / pCO ₂ 14 / calc HCO ₃ 5
BUN	52
Cr	3.4

Of the following choices, what is the acid-base abnormality?

- A. Anion gap metabolic acidosis
 - B. Non-anion gap metabolic acidosis
 - C. Respiratory acidosis with a metabolic acidosis
 - D. Anion gap metabolic acidosis with respiratory alkalosis
-

275.

A 46-year-old alcoholic male is brought to the emergency department with altered mental status by a friend following a week of “heavy” drinking. He is found to have a glucose level of 45 and, with D50 administration, his mental status returns to normal. He has been drinking a quart of vodka a day for the past 12 years, but for the past week has doubled that amount. On examination, his blood pressure is 110/74, pulse 112, respiration 22; his hands are tremulous, and he has hepatomegaly with a liver span of 14 cm. His initial laboratory studies are: sodium 135, potassium 3.9, CO₂ 16, chloride 94, BUN 7, serum creatinine 0.8 mg/dL. His serum osmolality is 302. ABGs: pH 7.30, PCO₂ 30, HCO₃ 14. Hemoglobin is 11.3, Hct 35.1%, and WBC 8.7. He is given IV fluids (D5 ½N/S), vitamins, and lorazepam. Studies for hepatitis B and C are negative, and ultrasound of his liver shows no obstruction. Clinically, he seems to be improving, but 3 days later his serum creatinine is noted to be 5.5. Urinalysis at this time: Sp Gr 1.1010, pH 5.5, 3+ blood, no glucose, trace protein, 0–1 RBCs/HPF, 3–5 hyaline casts, and 2–3 granular casts. His serum osmolality is 302, and his urine sodium concentration is 54 mEq/L.

Which of the following is the most likely explanation for this rise in his creatinine?

- A. Isopropyl alcohol intoxication
 - B. Acute renal failure secondary to ethylene glycol
 - C. Methanol intoxication
 - D. Acute renal failure secondary to rhabdomyolysis
 - E. Hepatorenal syndrome
-

276.

A previously healthy 65-year-old woman presents to her physician's office with a 3-month history of swelling in her legs that worsens when she has been standing for long periods of time. Her past medical history was significant only for hemicolectomy for diverticulosis 10 years previously. Since that time she has been very active with no other medical problems. Her only medication has been a daily multivitamin and calcium supplements.

On physical examination, her blood pressure was 134/84 with a pulse of 82 per minute. She was well dressed and appeared younger than her stated age. Her physical examination was remarkable only for 2+ edema of her lower extremities, extending up to her knees. At that time, her CBC and electrolytes were all within reference ranges, her BUN was 22 with a serum creatinine of 1.1 mg/dL, and her serum albumin was 2.1 mg/dL. Urinalysis was remarkable for 4+ protein, no blood, no casts, and oval fat bodies. Complement level, ANA, HBV, and HCV serology were normal. A urine protein:creatinine ratio was 5.1 mg/g. She was started on lisinopril and underwent a renal biopsy, and a diagnosis of membranous glomerulopathy was made. A decision is made with her not to initiate therapy at this time and to follow her closely. One month later, her values are unchanged.

Four months later, she notices that her urine looks very dark, so she returns for a follow-up visit. At this time, her BP is 164/104, and her edema is worse. The serum creatinine is 4.5 mg/dL, and her urinalysis reveals 4+ protein, 4+ blood, and, on microscopic examination, she has too many red cells to count.

Which of the following would be the most appropriate next step in the management of this patient?

- A. Begin therapy with prednisone and cyclophosphamide.
- B. Obtain an MRI of the kidneys.
- C. Obtain an MR-Angiogram of the kidneys.
- D. Discontinue lisinopril and begin amlodipine.
- E. Begin plasmapheresis.

277.

A 65-year-old gentleman presents to the emergency department complaining of shortness of breath. He has a history of ischemic cardiomyopathy and has been experiencing progressive dyspnea, worsening orthopnea, and more frequent paroxysmal nocturnal dyspnea over the past 2 weeks. He has a history of 2 MIs. Four months ago, he underwent triple vessel coronary artery bypass grafting. A recent echocardiogram showed an ejection fraction of 15%.

His medications are captopril 25 mg tid, furosemide 120 mg bid, digoxin 0.25 mg daily, carvedilol 2.5 mg bid, and warfarin 5 mg daily.

On physical examination: blood pressure 102/68, pulse 98 per minute and regular, temperature 98.6° F, respiration 16 per minute. In general, he is a thin, elderly gentleman in moderate respiratory distress. His central venous pressure is 16 cm, and his chest has bibasilar crackles throughout both lung fields. The PMI is displaced to the anterior axillary line with a regular S₁ and an S₃ gallop. There is a III/VI holosystolic murmur heard at the apex, radiating to the axilla. His abdomen is unremarkable; there is 2+ peripheral edema.

ECG: no acute ST-T changes, old inferior and anteroseptal myocardial infarction with sinus rhythm. Chest x-ray: pulmonary vascular congestion with cardiomegaly. Electrolytes: sodium 121, potassium 3.2, chloride 96, CO₂ 32, BUN 73, creatinine 1.2. CBC: normal. U/A: specific gravity 1.020, pH 5.5, pro-trace, otherwise negative.

Which of the following is the most important cause of this patient's hyponatremia?

- A. Renal sodium losses secondary to furosemide
 - B. Increased sodium reabsorption due to heart failure
 - C. Increased production of antidiuretic hormone
 - D. Impaired water excretion due to renal failure
 - E. Adrenal insufficiency
 - F. Hypothyroidism
-

278.

A 26-year-old man with HIV presents with shortness of breath. He was diagnosed with HIV 2 years ago but has not consistently taken his anti-retroviral therapy and is currently taking no medications. On physical examination: BP 110/76, P 114/min, RR 16, and Temp 37.5° C. He becomes short of breath with any minimal activity; chest exam reveals scarce bilateral crackles, and the rest of his exam is unremarkable. Chest x-ray: bilateral interstitial infiltrates. ABGs on room air: PO₂ 52, PCO₂ 32, pH 7.48; electrolytes normal; serum creatinine 1.1; urinalysis normal. T cell CD4 is 76; viral load is pending. The patient is started on oxygen, trimethoprim/sulfamethoxazole, and prednisone and begins to show improvement; but 1 week later, his creatinine has risen to 3.4 mg/dL. Urinalysis demonstrates pH 1.015, trace protein, trace blood with no glucose. Microscopic: 4–6 WBCs, 0–2 RBCs, and occasional hyaline casts.

Which of the following is the most likely cause of his acute kidney injury?

- A. Acute prerenal azotemia
 - B. Acute interstitial nephritis
 - C. Acute glomerulonephritis
 - D. Acute tubular necrosis
 - E. HIV-associated nephropathy
-

279.

A 42-year-old Caucasian male is evaluated for shortness of breath. He has a 3-week history of progressive dyspnea on exertion; more recently, he began coughing up blood and now is seeking medical attention. His past medical history is unremarkable, except for a long history of chronic allergic rhinitis for which he has used nasal steroids and over-the-counter antihistamines. His past medical history is otherwise unremarkable. On physical examination, his blood pressure is 150/90, pulse 110 per minute, respiration 20 per minute, temperature 98.7° F. In general, he is a thin white male who gets short of breath periodically during the history taking. His HEENT examination is unremarkable. He has no lymphadenopathy. His chest has scattered crackles. The rest of his examination is normal. His electrolytes demonstrate sodium 136, potassium 3.9, chloride 110, HCO₃ 26, BUN 62, creatinine 3.1, hemoglobin 10.5, hematocrit 32.5%, WBCs 11,500. ABGs on room air: PO₂ 56, PCO₂ 29, pH 7.33, bicarbonate 26. Urinalysis: specific gravity 1.015, pH 5, 2+ protein, 3+ blood, no glucose. Microscopic: 15–20 RBCs per high-power field, 0–2 RBC casts, 5–7 WBCs. Chest x-ray: diffuse bilateral patchy infiltrates. Renal biopsy is performed and demonstrates cellular crescents, with negative immunofluorescence.

Which of the following statements is correct?

- A. PR3-ANCA is likely to be positive.
 - B. Plasmapheresis should be initiated immediately.
 - C. Anti-glomerular basement membrane antibody (anti-GBM) is likely to be positive.
 - D. This patient is likely to have a significant eosinophilia.
 - E. Complement levels will be low.
-

280.

A 22-year-old Caucasian college student was seen for evaluation of progressive swelling in his ankles over the last 10 days. The patient's roommate notes that his eyes look swollen in the morning. The patient has no previous medical history and is taking no medications. On physical examination, his blood pressure is 116/78, and the rest of the vital signs are normal. The examination is remarkable only for edema that is 3–4+ pitting, extending all the way up to the thighs with 2+ presacral edema. CBC is normal, sodium is 131, potassium 3.9, chloride 103, HCO_3^- 26, BUN 22, and creatinine 0.9. Urinalysis: pH 5, specific gravity 1.008, 4+ protein, no blood. On microscopic examination, oval fat bodies are present. Further evaluation reveals a serum cholesterol of 387 mg/dL, serum albumin 0.9 g/dL, and a 24-hour urine protein is 14.3 g/day. A calculated creatinine clearance is 112 mL per minute.

Which of the following statements is true?

- A. Treatment should be initiated with cyclosporine.
 - B. Treatment should be initiated with steroids and cytotoxic therapy to prevent progressive renal disease.
 - C. The most likely diagnosis is focal and segmental glomerulosclerosis.
 - D. This patient is not likely to develop progressive renal failure.
 - E. ACE inhibitor therapy should not be used in patients with heavy proteinuria.
-

281.

A 19-year-old Caucasian male is seen for evaluation of hematuria. He has always been healthy with no medical problems; but yesterday, he developed an upper respiratory infection. Last night, when he urinated, he noted that his urine was initially very dark and then appeared to be grossly bloody. Quite concerned about this problem, he made an appointment for an office visit the following morning. This is the first time this has ever happened, and he has no family history of anyone having any similar problems. His physical examination is entirely normal. CBC and electrolytes are normal. His BUN is 11, and the serum creatinine is 0.8. Urinalysis demonstrated blood-tinged urine with 4+ blood and trace protein. There are too many red blood cells to count microscopically, and there are occasional red blood cell casts.

Which of the following is the most appropriate next step in the evaluation and management of this patient?

- A. Immediate referral for renal biopsy.
 - B. Referral to urologist.
 - C. Order complement levels.
 - D. Begin prednisone 60 mg daily.
 - E. Hearing evaluation.
-

282.

A 17-year-old female is brought to the emergency department by her parents, because she has become lethargic and seems to have trouble breathing. They have noticed that, over the last several weeks, she has been going to the bathroom more frequently and appears to have lost some weight. She has always been a good student, but recently she has felt poorly and has had difficulty completing her homework assignments. For the last 2 days, she has completely lost her appetite, has had nausea, and she vomited 5–7 times during the day before she was brought in. She has no previous medical history. On physical examination, her blood pressure is 95/60, pulse 114 per minute, respirations 24, temperature afebrile. In general, she is a thin and lethargic but arousable 17-year-old woman who is breathing deeply. Her skin turgor is markedly decreased, and her neck veins are not visible. She has a hyperdynamic precordium, but the examination is otherwise unremarkable.

Laboratory studies: sodium 124, potassium 5.9, chloride 80, CO_3 18, BUN 31, creatinine 1.4, hemoglobin 15.1, hematocrit 47%. Urinalysis: specific gravity 1.010, pH 5, 4+ glucose, 2+ ketones. ABGs on room air: PO_2 105, pH 7.25, PCO_2 20, bicarbonate 12. The patient is immediately given 3 liters of .9 NS, and an insulin drip is initiated with improvement in her sensorium.

Which of the following acid-base abnormalities does she have?

- A. Metabolic acidosis, respiratory acidosis, metabolic alkalosis
 - B. Respiratory acidosis, metabolic acidosis, metabolic alkalosis
 - C. Metabolic acidosis, respiratory alkalosis, metabolic alkalosis
 - D. Metabolic acidosis, respiratory alkalosis
 - E. Respiratory acidosis, metabolic alkalosis
-

283.

A 35-year-old woman comes in for a routine physical examination. Her only complaint is that lately she has been feeling “weak,” but is otherwise able to work and perform all of her normal activities. She has no medical problems, denies any special diet, and takes no medicines or over-the-counter medications. Her family history is significant for an older brother who died in his late 20s. On physical examination, her blood pressure is 116/76, pulse 86, with the rest of the examination being normal. Screening laboratory studies were obtained with everything returning normal except for her electrolytes, which revealed sodium 136, potassium 2.8, chloride 91, CO_3 34, BUN 11, and creatinine 0.7.

Which of the following is the most likely diagnosis?

- A. Renal artery stenosis
 - B. Liddle syndrome
 - C. Primary hyperaldosteronism
 - D. Addison disease
 - E. Bartter syndrome
-

284.

A 29-year-old man with a 14-year history of Type 1 diabetes presents to his primary care physician for a maintenance follow-up visit. He has a Hx of neuropathy and retinopathy, previously treated with laser therapy, and chronic kidney disease with a Scr of 2.4 and a GFR of 38 ml/min. He has maintained excellent control of his blood sugars with a hemoglobin A1c of 6.9%. Blood pressure control has been stable with blood pressures 132–122/75–85. He had a urine protein:creatinine ratio of 3.6 that improved when he was started on lisinopril. Medications are insulin, simvastatin, lisinopril, amlodipine, gabapentin, and aspirin. On physical examination, blood pressure is 122/78 and pulse is 82 per minute. In general, he is a well-appearing 29-year-old man. Exam is remarkable only for decreased touch and vibratory sense. Labs: Hgb 10.2, Hct 31.6%, WBC 6.5, Na 138, Cl 104, K 4.6, CO₂ 22, BUN 41, SCr 2.4, Ca 9.7, P 4.5, Alb 3.9. Urine protein:creatinine ratio 0.250.

Which of the following is most appropriate in the management of this patient at this visit?

- A. Begin an erythropoietin-stimulating agent.
- B. Begin dialysis.
- C. Measure erythropoietin.
- D. Measure parathyroid hormone level.
- E. Discontinue lisinopril.

285.

A 24-year-old Caucasian male presents for evaluation of kidney stones. His history began at age 2 with a bladder neck obstruction secondary to stones requiring surgical intervention. At age 9, he was noted to be below the 5th percentile for height and weight, and his long bones showed “ricketic” changes. He had pyelonephritis and stones at age 10, and 1 year later, he had pyelolithotomy and *Pseudomonas* urinary tract infection, but no further stones. He did well until he was 19, when he presented to a local emergency department with severe muscle weakness and arrhythmias and was found to have a potassium of 1.8 mEq/L. He was placed on potassium supplements and now comes in for follow-up. His family history is significant for 2 maternal uncles with stones, and his father, paternal grandfather, and paternal aunts and uncles with hearing loss.

On physical examination, his blood pressure is 120/80, and in general he is short in stature, has significant hearing loss, and is wearing bilateral hearing aids. His examination is remarkable only for surgical scars on his abdomen.

Labs:	Na 139, K 2.8, Cl 117, CO ₃ 12, BUN 31, Cr 1.8
Urinalysis:	Sp Gr 1.010; pH 7; no protein, blood, or glucose; + calcium oxalate crystals
ABGs:	pH 7.29, pCO ₂ 25, HCO ₃ 12
Urine Lytes:	Na 130, K 20, Cl 110
Abdominal flat plate:	Calcium deposits in periphery of both kidneys

Which of the following is the most likely diagnosis?

- A. Type 2 RTA
- B. Type 1 distal RTA
- C. Type 4 RTA
- D. Chronic diarrhea
- E. Salicylate intoxication

286.

A 75-year-old man with long-standing hypertension and diabetes mellitus presents to the emergency department complaining of generalized weakness and malaise. His blood pressure had been well controlled at an outpatient visit 4 months earlier. He has had a history of nocturia 1 to 2 times per night and has noted a decrease in the strength of his urinary stream for the past 2 years, but for the last 2 days he has had difficulty urinating. His home blood sugars have been in the 135–165 range. Labs show that at his outpatient visit, his electrolytes were normal with a serum creatinine of 1.1 and no proteinuria. Medications are hydrochlorothiazide, amlodipine, glipizide, aspirin, and atorvastatin. He has no history of heart disease, cough, fever, or weight loss.

His physical exam shows a mildly obese man with a blood pressure 150/100 mmHg supine and standing, P 50 bpm, RR 28/min, and he is afebrile. He has no jugular venous distention or carotid bruit. Lungs are clear. Cardiac exam shows regular slow rate without murmur or gallop. He has lower abdominal tenderness without guarding but no peripheral edema. He has generalized weakness but no focal neurologic findings.

Laboratory evaluation: Hb 13.9 g/dL, Hct 40%, WBC 8,000/mL, platelets 240,000/mL
Na 133 mEq/L, K 6.8 mEq/L, Cl 100 mEq/L, bicarbonate 23 mEq/L,
BUN 21 mg/dL, Cr 2.4 mg/dL, glucose 170 mg/dL
Urinalysis shows Sp Gr 1.015, pH 5.7, 100 mg/dL protein, trace glucose
ECG shows sinus bradycardia with 1st degree AV block with peaked T waves

Which of the following is the most likely cause of his hyperkalemia?

- A. Pseudohyperkalemia
- B. Potassium movement into the extracellular fluid due to acidosis
- C. Chronic kidney disease due to diabetes mellitus and hypertension
- D. Impaired renal excretion due to Type 4 renal tubular acidosis due to diabetes mellitus
- E. Impaired renal excretion due to Type 4 renal tubular acidosis due to obstructive uropathy
- F. Excessive dietary potassium intake

287.

A 37-year-old man with no prior history presents at the urging of his wife for evaluation of nocturia. He states that he has always liked to drink water frequently and urinates several times per day and 3 or 4 times every night. He had no childhood illnesses that he is aware of, except enuresis up until the age of 10.

Physical exam shows a young man with BP 130/70 mmHg, P 68 bpm, RR 10/min; he is afebrile. His general physical exam is completely within normal limits.

Laboratory evaluation: Hb 14.2 g/dL, Hct 43%, WBC 7,000/mL, platelets 367,000/mL
Na 147 mEq/L, K 4.2 mEq/L, Cl 118 mEq/L, bicarbonate 24 mEq/L,
BUN 13 mg/dL, creatinine 1.0 mg/dL, glucose 80 mg/dL
Urinalysis: Sp Gr 1.012, pH 5.5, negative dipstick and microscopic analysis
Urine: Na 57 mEq/L, K 42 mEq/L, Cl 110 mEq/L, osmolality 270 mOsm/kg
24-hour urine volume: 6,500 mL

Following the administration of vasopressin tanate in oil, the patient's urine volume over the next 24 hours was 5,800 mL. Repeat labs were: Na 148 mEq/L, K 4.1 mEq/L, Cl 119 mEq/L, bicarbonate 24 mEq/L, BUN 11 mg/dL, creatinine 1.1 mg/dL. His measured urine osmolality at this time was 282 mOsm/kg.

Which of the following is the most appropriate therapy for this patient?

- A. Request psychiatric evaluation.
 - B. Begin chlorpropamide 250 mg/d.
 - C. Begin nasal installation of des-amino arginine vasopressin (DDAVP®) twice a day.
 - D. Begin water restriction 2,000 mL/day.
 - E. Begin hydrochlorothiazide 25 mg/day.
-

288.

A 40-year-old man with anemia and a creatinine of 1.8 presents for follow-up. He has a 24-hour urine test done that shows he is excreting 2.1 grams of protein on a daily basis. Urinalysis shows a specific gravity of 1.020 and negative protein.

Which of the following best explains this discrepancy?

- A. The urine test strip detects only negatively charged proteins like albumin.
 - B. Tamm-Horsfall proteins block the test strip reaction.
 - C. The urine test strip recognizes only heavy chain proteins.
 - D. His urine was too diluted, leading to a false-negative dipstick test.
 - E. The urine test strip cannot detect smaller proteins.
-

289.

Which of the following lab values are consistent with a young man drinking ethylene glycol?

- A. Na 138, K 5.2, Cl 104, HCO_3^- 22, Serum Creatinine 3.5, Arterial pH 7.36
 - B. Na 135, K 4.5, Cl 106, HCO_3^- 22, Serum Creatinine 3.5, Arterial pH 7.37
 - C. Na 140, K 2.6, Cl 115, HCO_3^- 13, Serum Creatinine 3.5, Arterial pH 7.31
 - D. Na 136, K 4.8, Cl 100, HCO_3^- 10, Serum Creatinine 3.5, Arterial pH 7.25
 - E. Na 140, K 6.2, Cl 109, HCO_3^- 20, Serum Creatinine 3.5, Arterial pH 7.36
-

290.

Which of the following lab values are consistent with a middle-aged woman who has been given amphotericin B for the treatment of disseminated histoplasmosis?

- A. Na 143, K 4.8, Cl 100, HCO_3^- 10, Serum Creatinine 3.5, Arterial pH 7.25, Urine pH 5.0
 - B. Na 140, K 2.6, Cl 115, HCO_3^- 13, Serum Creatinine 3.5, Arterial pH 7.31, Urine pH 6.2
 - C. Na 135, K 4.5, Cl 106, HCO_3^- 22, Serum Creatinine 3.5, Arterial pH 7.37, Urine pH 5.0
 - D. Na 140, K 5.2, Cl 102, HCO_3^- 20, Serum Creatinine 3.5, Arterial pH 7.36, Urine pH 5.0
 - E. Na 140, K 6.2, Cl 109, HCO_3^- 20, Serum Creatinine 3.5, Arterial pH 7.36, Urine pH 5.0
-

291.

A 17-year-old boy has had acute post-streptococcal glomerulonephritis. He is improving and is feeling better.

Which of the following laboratory values are consistent with someone in a recovery period like his?

- A. Na 136, K 5.0, Cl 102, HCO₃ 20, Serum Creatinine 3.5, Arterial pH 7.36, Urine pH 5.0
 - B. Na 140, K 2.6, Cl 115, HCO₃ 13, Serum Creatinine 3.5, Arterial pH 7.31, Urine pH 6.2
 - C. Na 143, K 4.8, Cl 100, HCO₃ 10, Serum Creatinine 3.5, Arterial pH 7.25, Urine pH 5.0
 - D. Na 135, K 4.5, Cl 106, HCO₃ 5, Serum Creatinine 3.5, Arterial pH 7.22, Urine pH 5.0
 - E. Na 140, K 6.2, Cl 109, HCO₃ 20, Serum Creatinine 3.5, Arterial pH 7.36, Urine pH 5.0
-

292.

Which of the following laboratory values support the diagnosis of Type 4 renal tubular acidosis?

- A. Na 135, K 4.5, Cl 106, HCO₃ 22, Serum Creatinine 1.5, Arterial pH 7.37, Urine pH 5.0
 - B. Na 136, K 5.2, Cl 108, HCO₃ 20, Serum Creatinine 4.5, Arterial pH 7.36, Urine pH 5.0
 - C. Na 140, K 2.6, Cl 115, HCO₃ 13, Serum Creatinine 1.5, Arterial pH 7.31, Urine pH 6.2
 - D. Na 143, K 4.8, Cl 100, HCO₃ 10, Serum Creatinine 4.5, Arterial pH 7.25, Urine pH 5.0
 - E. Na 140, K 6.2, Cl 109, HCO₃ 20, Serum Creatinine 1.5, Arterial pH 7.36, Urine pH 5.0
-

293.

Which of the following laboratory values are consistent with multiple myeloma?

- A. Na 140, K 2.6, Cl 115, HCO₃ 13, Serum Creatinine 3.5, Arterial pH 7.31, Urine pH 6.2
 - B. Na 140, K 6.2, Cl 109, HCO₃ 20, Serum Creatinine 3.5, Arterial pH 7.36, Urine pH 5.0
 - C. Na 136, K 5.2, Cl 102, HCO₃ 20, Serum Creatinine 3.5, Arterial pH 7.36, Urine pH 5.0
 - D. Na 135, K 4.5, Cl 108, HCO₃ 22, Serum Creatinine 3.5, Arterial pH 7.37, Urine pH 5.0
 - E. Na 143, K 4.8, Cl 100, HCO₃ 10, Serum Creatinine 3.5, Arterial pH 7.25, Urine pH 5.0
-

294.

The hyperlipidemia of nephrotic syndrome is best characterized by which of the following:

- A. Elevation of total cholesterol but no increase in atherogenesis
 - B. Elevation of all lipids but no increase in atherogenesis
 - C. Selective elevation of LDL cholesterol with increased atherogenesis
 - D. Very high (> 30%) risk of myositis in those treated with lipid-lowering agents
 - E. Doesn't respond well to HMG-CoA reductase inhibitors
-

295.

A 20-year-old male college gymnast presents to your office for a sports physical examination. He denies any current complaints. His past medical history is unremarkable. Family history is significant for his father who has hypertension. He reports that he exercises 6 days/week and works hard to maintain a healthy diet. He does not smoke and reports occasional alcohol use of 2–3 drinks on the weekend. He denies illicit substance use.

On physical exam, blood pressure is 170/110, heart rate is 85/min. He is a well-developed muscular male without distress. Funduscopic exam reveals clear disc margins with normal retinal vessels. Pupils are equal, round, and reactive to light bilaterally. Cardiovascular exam reveals regular rate and rhythm with normal S_1/S_2 . No carotid, abdominal, or femoral bruits are appreciated on exam. The remainder of the physical exam is unremarkable.

Laboratory examination reveals the following:

Sodium 143 mEq/L

Potassium 3.2 mEq/L

Chloride 105 mEq/L

Bicarbonate 24 mEq/L

BUN 18 mg/dL

Urinalysis: no proteinuria or hematuria

ECG: normal sinus rhythm without signs of hypertrophy

Renal Ultrasound: a 2-cm lesion is seen in the right adrenal area.

Which of the following tests would be the next best step in the evaluation of this patient?

- A. Urine catecholamines
 - B. 24-hour urine cortisol
 - C. Plasma aldosterone/renin ratio measurement
 - D. TSH
 - E. Adrenal gland biopsy
-

296.

A 45-year-old man with a history of hypertension and hyperlipidemia is establishing care in your clinic. Despite regularly taking metoprolol, hydrochlorothiazide, amlodipine, and lisinopril, his blood pressures remain > 150/90 mmHg. Today, he has no chest pain or shortness of breath, but he has noted some leg edema and muscle weakness. Labs today show a creatinine of 1.0 (0.6–1.2), sodium 138 (135–145), potassium 2.6 (3.5–5.0), chloride 100 (95–107), and CO_2 29 (24–32).

What is the next step in the evaluation of his hypertension?

- A. Measure aldosterone and plasma renin activity.
 - B. Measure aldosterone after administration of 2 liters of normal saline.
 - C. Adrenal CT.
 - D. Renal angiography.
 - E. Overnight dexamethasone suppression test.
-

ENDOCRINOLOGY

297.

A 43-year-old woman presents to your office for a preventive health visit. Her past medical history is significant for chronic kidney disease due to focal glomerulosclerosis with an estimated GFR of 20 mL/min/1.73 m². She currently takes furosemide, amlodipine, metoprolol, ferrous sulfate, and erythropoietin. She reports being compliant with her current medications.

On physical exam, blood pressure is 138/85, heart rate 75/min. Examination reveals 1+ pitting edema of the lower extremities. The remainder of the physical exam is unremarkable.

Review of laboratory studies collected by her nephrologist 3 months ago reveal:

Hemoglobin A1c: 5.4%
Fasting plasma glucose: 130 mg/dL
2-hour oral glucose tolerance test: 175 mg/dL

Which of the following tests would be recommended to screen this patient for diabetes?

- A. Hemoglobin A1c
 - B. Fasting plasma glucose
 - C. 2-hour oral glucose tolerance test
 - D. Serum fructosamine
 - E. No additional testing needed
-

298.

A woman comes to your clinic complaining of galactorrhea. She is 55 years old with no significant past medical history except for an uneventful hysterectomy for fibroids at age 45. She is not on any hormone therapy, not involved in a sexual relationship, wears loose-fitting clothing, and denies nipple stimulation. You notice that she is very tired and moves slowly. She even seems to talk slowly. On physical examination, you can easily express thin, white fluid from both breasts. She has no breast masses or tenderness. Her skin is dry. A recent mammogram was unremarkable. You order a prolactin level and a CT of her pituitary. She returns for follow-up, and you find her unchanged. The prolactin was mildly elevated at 80 ng/mL (normal: 1.4–24.2 ng/mL), and she has a pituitary macroadenoma.

Which of the following is the next best step in patient care?

- A. Start bromocriptine.
 - B. Check TSH.
 - C. Because of her age, recheck the prolactin in 6–12 months.
 - D. Refer her to a neurosurgeon.
 - E. Look for an unknown non-pituitary cancer.
-

299.

A 27-year-old woman was found to have a 4-mm prolactin-secreting pituitary tumor 1 year ago. Her prolactin was 195 ng/mL (< 20), and she was started on 5 mg of bromocriptine daily. Today, she reports a positive pregnancy test.

What advice should you give with respect to the bromocriptine and follow-up during pregnancy?

- A. Stop bromocriptine; continue regular follow-up with an obstetrician.
 - B. Stop bromocriptine; switch to an equivalent dose of cabergoline.
 - C. Repeat prolactin level monthly until delivery.
 - D. Schedule MRI and formal visual field testing.
 - E. Continue bromocriptine.
-

300.

A 70-year-old woman with Type 2 diabetes and coronary artery disease has a hip fracture and is scheduled for surgery tomorrow. You are called by the anesthesiologist to evaluate her preoperative thyroid function tests. Her exam is remarkable for a B/P 130/80, pulse of 80, an easily palpable thyroid, and dry skin.

Lab: TSH 18 (0.2–4.2), free T_4 0.8 (0.9–1.5).

What advice should you give?

- A. Start 25 μ g of oral levothyroxine and proceed with surgery.
 - B. Give 400 μ g IV levothyroxine and proceed with surgery.
 - C. Give 25 μ g IV triiodothyronine and proceed with surgery.
 - D. Start 100 μ g oral levothyroxine and delay surgery until thyroid function is normal.
 - E. Delay surgery and repeat TFTs in 4 weeks.
-

301.

A 60-year-old woman is establishing care in your clinic. She has occasional numbness and tingling in her fingers and toes and has noted some numbness around her mouth, especially when she is stressed or anxious. She had thyroid surgery for Graves disease about 2 years ago and takes 100 μ g of levothyroxine and 1 tablet of calcium daily. On exam, her blood pressure is 130/80, pulse 80, and she has cramping in her right forearm and fingers when the blood pressure cuff is attached.

Based on this history and exam, which of the following is most likely?

- A. Calcium 6.0 (8.5–10.5), PTH 2 (10–65), PO_4 6.0 (2.7–4.5)
 - B. Calcium 8.0, PTH 98, PO_4 2.1
 - C. Calcium 10.8, PTH 108, PO_4 2.3
 - D. Calcium 9.5, PTH 35, PO_4 4.0
 - E. Calcium 8.5, PTH 65, PO_4 4.5
-

302.

A 56-year-old man has been well all of his life but is now having episodes of crashing headache, sweating, irritability, and ashen pallor. During one such episode, coworkers cajole him into making an immediate emergency department visit while you are on duty. You find his blood pressure to be 228/136 mmHg. With further questioning, you learn that his aunt had a “tumor taken off her thyroid gland” and that an uncle had a “tumor removed from on top of one of his kidneys.” You notice further that your patient has a neat row of small nodules along the leading edge of his protruded tongue.

Chromosomal analyses might very well lead, in selected family members, to prophylactic removal of which of the following?

- A. Kidneys
 - B. Pituitary glands
 - C. Adrenal glands
 - D. Thyroid glands
 - E. Parathyroid glands
-

303.

Your favorite patient comes to your clinic. He is 45 years old and has a recently diagnosed 5-mm prolactinoma, which you started treating with low-dose bromocriptine. He complains to you about constant nausea and vomiting since starting bromocriptine. He retches several times in your presence.

What is the next best thing to do?

- A. Try some prochlorperazine or other anti-nausea drug.
 - B. Stop the bromocriptine and follow his prolactinoma with serial MRIs.
 - C. Refer him to a neurosurgeon for resection of the prolactinoma.
 - D. Switch him to cabergoline.
 - E. Add cabergoline to bromocriptine.
-

304.

You are asked to see a patient admitted to the medicine service. He was found to have a large pituitary tumor that is extending toward the optic chiasm, but without any significant changes in his visual fields. The tumor is a prolactinoma. The primary physician is very concerned because of the size of the tumor. He wants to have the patient operated on immediately.

What would be the next best thing to do?

- A. Begin a trial of high-dose glucocorticoids.
 - B. Transfer the patient to a hospital with a competent neurosurgeon.
 - C. Begin pre-op evaluation in preparation for surgery in 3 days.
 - D. Start cabergoline and repeat the CT/MRI in a few days.
-

305.

A 28-year-old male is involved in a motor vehicle accident while riding a motorcycle and experiences loss of consciousness, despite wearing a helmet. He regains consciousness while en route to the hospital and denies any sequelae. On arrival at the hospital, the emergency department staff notes a mildly obese young man with central obesity, blood pressure 160/90, and multiple mild lacerations, but otherwise unremarkable. Routine labs are within normal limits. Other than general soreness, he has no complaints. A CT of the head is normal except for a 3-mm well-visualized pituitary mass. He is discharged from the emergency department after a period of observation and comes to see you several days later for follow-up. Your exam is similar to the emergency department's except that now his blood pressure is 140/85.

Which of the following would be the most appropriate next step at this time?

- A. Check an ACTH stimulation test, TSH, and a total testosterone.
- B. Refer him to a neurosurgeon for transsphenoidal resection of the pituitary mass.
- C. Discharge him from your clinic on a drug to treat hypertension and encourage him to stop riding motorcycles.
- D. Have him return to your clinic in a few weeks to recheck his blood pressure.
- E. Check serum IGF-1 and 24-hour urine cortisol.

306.

A 38-year-old woman is referred to you by a neurologist who was seeing her for severe headaches. His final diagnosis was stress headaches, but because a head MRI showed an empty sella, the neurologist wanted you to see her. On questioning, you learn that she has 7 children and all are healthy. When the first child was born, she experienced a difficult delivery and considerable bleeding that required a transfusion. All subsequent deliveries were uneventful. The review of systems was otherwise negative. Physical examination shows normally pigmented abdominal striae. The blood pressure is 100/60. You order some blood tests and find that the electrolytes, glucose, and TSH are normal.

Which of the following is the most correct thing for you to do next?

- A. Tell her that everything is normal and discharge her from your clinic.
- B. Refer her to a neurosurgeon for exploration of her pituitary gland.
- C. Diagnose Sheehan syndrome and begin replacement therapy.
- D. Evaluate for pituitary hypofunctioning.
- E. Evaluate for pituitary hyperfunctioning.

307.

A 60-year-old man comes to your clinic complaining of weight loss and reports losing 25 pounds over the last year. He recently moved to your town hoping that a change of pace might make him feel better. He has been somewhat depressed for the last 2 years. He doesn't get much exercise and often feels tired. He has smoked about a pack a day since he was in his twenties. He admits to feeling stressed in your office because he hasn't seen a doctor for over 20 years. His affect is somewhat flat, and his pulse is 101. Otherwise, your examination is unremarkable except for a mild tremor on outstretched extremities. Because of his smoking history and unexplained weight loss, you suspect lung cancer and order a chest x-ray. He returns for follow-up and is unchanged from the earlier office visit. The radiologist reports the chest x-ray as normal.

Which should you do next for this patient?

- A. Begin an antidepressant and have him return to clinic for follow-up.
 - B. Refer him to a psychiatrist for evaluation of depression.
 - C. Check FT₄ and TSH.
 - D. Refer him to an oncologist for workup of an occult cancer.
-

308.

A psychiatrist in your community refers a patient to you who is an 80-year-old woman being treated for depression. She reports generalized weakness, fatigue, dry skin, weight gain, and constipation. Her past medical history includes CHF and stable angina. Your examination reveals periorbital edema, skin that is cool and dry, loss of the lateral third of her eyebrows, mild bradycardia, and slow relaxation phase of her deep tendon reflexes. You strongly suspect hypothyroidism and check TSH and FT₄. The TSH is 95 μ IU/mL (normal: 0.3–5.0 μ IU/mL), and the FT₄ is 0.1 ng/dL (normal: 0.7–1.5 ng/dL). She obviously has severe hypothyroidism.

Which of the following should you do next?

- A. Administer thyroxine 500 μ g IV every day for 5 doses.
 - B. Administer thyroxine 500 μ g IV and triiodothyronine 20 μ g IV qd x 3.
 - C. Begin thyroxine 150 μ g PO qd.
 - D. Begin thyroxine 25 μ g PO qd.
 - E. Begin thyroxine 300 μ g PO qd.
-

309.

You are asked to see a patient in the surgical ICU who is doing poorly 7 days after emergency repair of a perforated colon. He is 68 years old and developed mesenteric ischemia, which resulted in his perforation. He is now septic and requires ventilator support. You note numerous laboratory derangements, including abnormal WBC, Hct, HCO₃, creatinine, hepatic enzymes, and arterial pH. He also has a mildly depressed TSH and FT₄. He is receiving adequate and appropriate care in the ICU, but the surgeon wants your opinion about his thyroid dysfunction.

Which of the following should be your response?

- A. The patient has mild hypothyroidism that doesn't need treatment.
 - B. The patient has mild hyperthyroidism that doesn't need treatment.
 - C. The patient probably does not have any thyroid problems.
 - D. The patient has mild pituitary dysfunction and should start thyroxine therapy.
 - E. The patient has mild hypothyroidism and should start thyroxine therapy.
-

310.

A 62-year-old man comes to see you because of a lump in his throat that has been there for about 1 year. You palpate a 2-cm firm nodule in the left lower lobe of his thyroid. The mass is nontender and movable. The remainder of his thyroid is non-palpable, and he has no palpable lymph nodes in his neck. You find him to be clinically euthyroid. You order thyroid tests and have him return to your clinic in 1 week. The nodule has not changed, and his TSH and FT₄ are both within normal limits.

Which of the following is the next best step in patient care?

- A. Begin thyroxine therapy in the hope that the nodule may shrink.
 - B. Refer him for a thyroid fine-needle biopsy and aspiration (FNA).
 - C. Refer him to a surgeon for a near-total thyroidectomy.
 - D. Refer him to a surgeon for a hemithyroidectomy.
 - E. Follow him for several years, watching for any changes in the nodule.
-

311.

A 65-year-old man has had benign prostatic hypertrophy for several years. He is still able to urinate effectively, but his symptoms have started to worsen. His urologist has scheduled a TURP for next week and referred him to you for a medical preoperative evaluation. Besides the expected prostate enlargement, your examination shows mild tachycardia and atrial fibrillation. Suspecting hyperthyroidism, you order thyroid function tests. The results are TSH 0.1 μ IU/mL (normal: 0.3–5.0 μ IU/mL) and FT₄ 2.5 ng/dL (normal: 0.7–1.5 ng/dL).

Which of the following is the best advice for you to give the urologist?

- A. Begin antithyroid medication now and postpone the surgery until he is euthyroid or nearly so.
 - B. Proceed with the operation and begin antithyroid medication afterward.
 - C. Give an ablative dose of radioactive iodine immediately before the operation.
 - D. Recheck his thyroid function postoperatively.
 - E. Postpone the surgery and ask the urologist to refer the patient to a cardiologist for treatment of his atrial fibrillation.
-

312.

A patient of yours comes to see you and complains about being tired. She gave birth to a healthy baby about 6 months ago, and she tells you that the infant is doing fine. Her obstetrician reported to you that the pregnancy and delivery were uneventful. You ask your patient to tell you more, and she says that at first everything was perfect. She had plenty of energy to take care of the baby and to do all of the housework; she easily lost the weight that she had gained; and she had no problem staying up at night to feed the child. After about 1 month, she began to get tired. At first she was able to ignore it, but her fatigue steadily worsened until she could barely function. She can no longer keep up with the baby's needs or the housework. She is having difficulty with nursing. She blames herself for everything that's wrong and begins to cry.

Which of the following should you do next?

- A. Tell her that the symptoms of her "postpartum blues" will soon pass.
 - B. Begin antidepressants.
 - C. Begin stimulants.
 - D. Order TSH and FT₄, suspecting hypothyroidism due to postpartum thyroiditis.
 - E. Refer her to a psychiatrist for evaluation.
-

313.

A mildly overweight 25-year-old man comes to your office because of an elevated glucose. He attended a health fair where his glucose was checked with a glucometer. His random glucose was found to be 220 mg/dL, and he was advised to have his glucose checked again. He reports more frequent urination and greater thirst than usual. The fasting glucose is 126 mg/dL. Metabolic panel otherwise is normal with a creatinine of 0.7 mg/dL.

Which of the following should you tell him?

- A. He is not diabetic.
 - B. He has diabetes and must talk with a diabetes educator and dietitian to begin a diet, exercise program, and metformin.
 - C. He has impaired glucose tolerance and should be rechecked in 1 year.
 - D. He may have diabetes and needs to be rechecked again next year.
 - E. He has diabetes but doesn't need treatment until his glucose reaches 140 mg/dL.
-

314.

A woman with Type 1 diabetes comes to your office. She has been followed by another physician but hasn't been feeling right and wants to try a different physician. She heard that you are the best internist in town. She is 50 years old and has had diabetes for 35 years. She has retinopathy (being followed by an ophthalmologist) and mild microalbuminuria. Her medications include NPH insulin 15 units every morning and 60 units at bedtime; a rapid-acting insulin analogue 6–12 units with each meal, which she adjusts depending on the pre-meal capillary glucose level; an ACE inhibitor every evening; and aspirin 81 mg daily. Her glucometer log shows glucose levels generally okay except for the morning fasting glucose, which is elevated. The physical examination is unremarkable except for some retinal microaneurysms. She has her most recent laboratory tests from last week, which are generally okay. The HbA1c is 5.8%. She is very proud of her HbA1c and reports that her other physician had been increasing the evening NPH in an attempt to lower the morning fasting glucose, which has been steadily high despite increasing the evening insulin. She reports to you that she has been experiencing terrible, vivid nightmares during the night and often wakes up in a cold sweat, but attributes this to a scary movie that she saw 2 months ago.

Which of the following is the most appropriate action to take at this time?

- A. Begin an anxiolytic to help her nightmares.
 - B. Reduce her evening NPH insulin and follow closely.
 - C. Increase the evening NPH insulin again to reduce the morning fasting glucose levels.
 - D. Add an insulin sensitizer to reduce her insulin needs.
 - E. Switch her to 70/30 insulin mix twice daily.
-

315.

A patient of yours comes to your office for a routine follow-up. He is 50 years old and has had Type 2 diabetes for 8 years. He is mildly overweight with a BMI of 28, has lost a few pounds over the past 4 months, is watching his diet as best he can, and is walking 1–2 miles every evening after work. You have been treating him with a thiazolidinedione, a statin, and a baby aspirin every day for the past 3 years. Three days before coming to your office he went to the lab for the routine tests that you asked him to get. Your physical examination is unremarkable. His blood pressure at the last visit was 132/80 and today is 134/82. His fasting LDL is 98 mg/dL; the liver function tests, including ALT, are well within normal limits; electrolytes are all normal; the creatinine is 0.8 mg/dL; the random urine microalbuminuria screen is 180 µg/mg.

Which of the following is the best next step in care?

- A. Increase the statin.
- B. Tell him to keep up the good work and continue to lose weight
- C. Add an ACE inhibitor or an angiotensin-receptor blocker (ARB).
- D. Add a calcium channel blocker for his hypertension.
- E. Start a low-dose diuretic such as hydrochlorothiazide 12.5 mg every morning.

316.

A patient develops a kidney stone and comes to see you. He is a “health freak” and takes megadoses of vitamins and supplements of calcium. The following labs are all elevated: calcium, ionized calcium, 25-OH-vitamin D, 1,25-(OH)₂-vitamin D, and intact PTH. You briefly entertain a long differential diagnosis because of his megadoses of vitamins and minerals, but you quickly discard all of them except one.

Which of the following is the most likely diagnosis?

- A. Pseudopseudohypoparathyroidism
- B. Vitamin D intoxication
- C. Vitamin A intoxication
- D. Primary hyperparathyroidism
- E. Secondary hyperparathyroidism

317.

You are asked to see a woman recently hospitalized for a hip fracture and found to have hypocalcemia. She is 75 years old and has been in poor health for quite some time. She lives alone and is reluctant to leave her house. Her granddaughter does the shopping and laundry for her, but admits that her grandmother doesn’t eat very much. Her only medication is hydrochlorothiazide 50 mg every morning for mild hypertension; she rarely goes to her internist for scheduled appointments. When you examine her, you find a frail-looking elderly woman with moderate dementia. She has a right hip fracture that she attributes to falling down the steps to her front door. The orthopedic surgeon is currently deciding whether to operate. In the meantime, full DVT precautions are in place. Her labs, including the additional tests ordered by you, come back as the following:

Na ⁺	142 mEq/L	(135–143 mEq/L)
K ⁺	3.6 mEq/L	(3.5–5.0 mEq/L)
Cl ⁻	105 mEq/L	(100–109 mEq/L)
HCO ₃ ⁻	28 mEq/L	(22–30 mEq/L)

Urea nitrogen	22 mg/dL	(8–18 mg/dL)
Creatinine	1.2 mg/dL	(0.6–1.2 mg/dL)
Glucose	86 mg/dL	(65–110 mg/dL)
Calcium	7.6 mg/dL	(8.9–10.5 mg/dL)
Phosphate	1.8 mg/dL	(2.5–4.5 mg/dL)
Magnesium	2.9 mg/dL	(1.4–2.5 mg/dL)
25-OH-vitamin D	6 µg/L	(10–55 µg/L)
1,25-(OH) ₂ -vitamin D	12 ng/L	(18–62 ng/L)
Intact PTH	81 pg/mL	(10–65 pg/mL)

Bone density at hip z-score is –2.8 SD.

Which of the following is the most likely cause of her hypocalcemia?

- A. Hypermagnesemia
 - B. Vitamin D deficiency
 - C. Hypophosphatemia
 - D. Thiazide diuretic
 - E. Primary hyperparathyroidism
-

318.

A patient of yours comes to the clinic for his routine follow-up. He is 47 years old and has Type 2 diabetes. He is moderately obese, has mild hypertension treated effectively with an ACE inhibitor, and has hypercholesterolemia treated with a statin. Before you started the statin, his LDL-cholesterol was 170 mg/dL. His glycemic control has been difficult, and he is currently taking a thiazolidinedione, metformin, and a rapid-acting secretagogue, all at the maximum dose allowed. Despite 3 drugs, his glycemic control has worsened during the past 6 months along with his weight. He states that he is tired of watching his diet and admits to gaining 21 pounds in the last 6 months. The blood pressure today is 126/74. The physical examination is unchanged; his feet are fine.

LABORATORY 6 months ago (fasting):

Na ⁺	140 mEq/L	(135–143 mEq/L)
K ⁺	4.0 mEq/L	(3.5–5.0 mEq/L)
Cl [–]	107 mEq/L	(100–109 mEq/L)
HCO ₃ [–]	24 mEq/L	(22–30 mEq/L)
Urea nitrogen	11 mg/dL	(8–18 mg/dL)
Creatinine	1.0 mg/dL	(0.6–1.2 mg/dL)
Glucose	102 mg/dL	(65–110 mg/dL)
HbA1c	8.5%	(4.9–6.2%)
TChol	169 mg/dL	
LDL	92 mg/dL	
HDL	38 mg/dL	
Triglycerides	195 mg/dL	

Random urine microalbuminuria screen is 12 µg/mg (< 30 µg/mg).

LABORATORY today (fasting):

Na ⁺	139 mEq/L	(135–143 mEq/L)
K ⁺	4.1 mEq/L	(3.5–5.0 mEq/L)
Cl ⁻	105 mEq/L	(100–109 mEq/L)
HCO ₃ ⁻	24 mEq/L	(22–30 mEq/L)
Urea nitrogen	12 mg/dL	(8–18 mg/dL)
Creatinine	1.0 mg/dL	(0.6–1.2 mg/dL)
Glucose	179 mg/dL	(65–110 mg/dL)
HbA1c	10.2%	(4.9–6.2%)
TChol	198 mg/dL	
LDL	98 mg/dL	
HDL	36 mg/dL	
Triglycerides	320 mg/dL	

Random urine microalbuminuria screen is 17 µg/mg (< 30 µg/mg).

Which of the following is the best choice to address the hypertriglyceridemia?

- A. Stop the statin and begin a fibrate.
 - B. Add a fibrate and another statin to his current statin.
 - C. Discontinue his oral agents for glycemic control and switch him to insulin.
 - D. Add an α -glucosidase inhibitor to his diabetic regimen.
 - E. Continue his statin and add a second statin.
-

319.

You are asked to see a woman recently admitted to the ICU with hypotension. She is unable to give a history, and no family members or friends are available. Witnesses report that she was sitting at the airport waiting for a connecting flight when she passed out. The person sitting next to her noticed that she became quite agitated when it was announced that the flight would be delayed for 6 hours, just before she passed out. There is no evidence of a pulmonary embolism. During your examination, you note that she is very thin, lacks axillary hair, has sparse pubic hair, and has extra pigmentation on her gums and buccal mucosa. The blood pressure was 40/palp with a heart rate of 130 when she first arrived, but is now 100/64 with a heart rate of 78 with saline running. Her temperature is 98.2° F; the cardiac rhythm is sinus; the routine chemistry tests show a hyperkalemic metabolic acidosis; and the renal status is compatible with prerenal azotemia.

Which of the following should you do now?

- A. Begin dexamethasone 4 mg IV and order an ACTH stimulation test.
 - B. Measure ACTH and TSH before beginning prednisone 60 mg and thyroxine 100 µg every day.
 - C. Measure cortisol and FT₄ levels before beginning thyroxine and methylprednisolone.
 - D. Begin hydrocortisone 100 mg IV every 8 hours and order an ACTH stimulation test.
 - E. Begin hydrocortisone 100 mg IV every 8 hours.
-

320.

A 40-year-old man is referred to you after a DXA scan done at a health fair screening indicated low bone density with a T-score of -1.6 . He tries very hard to stay healthy by exercising and taking mega-doses of vitamins. On examination, nothing remarkable is found. Chem-7, LFTs, and albumin are normal.

	Patient's	Normal
Calcium	10.7 mg/dL	8.5–10.5
Phosphorus	4.7 mg/dL	1.5–4.5
25-OH-D	60 microgram/L	9–52
1,25-(OH) ₂ -D	13 ng/L	16–60
iPTH	5 pg/mL	18–73
Testosterone	550 ng/dL	260–1,000

Which of the following is the most likely cause of his osteopenia and elevated Ca?

- A. Primary hypoparathyroidism
 - B. Excess calcium in his diet
 - C. Surreptitious use of anabolic steroids
 - D. Vitamin A intoxication
 - E. Vitamin D
-

321.

A 79-year-old woman comes to you accompanied by her daughter visiting from out of town. The patient insists she is fine. The daughter confirms the patient's assertion that there's been no difficulty with swallowing or breathing, nor has there been a change in her mother's voice. The family reports weight loss, irritability, and anxiousness. P 104, regular. She has tremor of her outstretched arm and an irregularly textured thyroid. The trachea is not deviated. She cannot resist your pressure against raising her leg from the exam table. T₄ is 17 and TSH < 0.1 mIU/mL.

Which of the following is the most appropriate evaluation?

- A. MRI of head
 - B. CT neck
 - C. Thyroid ultrasound
 - D. Thyroid scan
 - E. Thyroid scan and uptake
-

322.

A 37-year-old man is referred to you for cholesterol of 256 mg/dL. He states he has decreased intake of meat, fried foods, and dairy other than low- or no-fat products, and has trouble jogging due to leg cramps. Despite diet change, his weight increased 5 pounds in the past 3 months. Pulse is 66 and BP is 146/88. His thyroid is difficult to feel in his large neck. His hair is not shiny, his skin is dry, and there are no bruits, xanthomas, or xanthelasma.

He returns in 2 weeks, training for a half triathlon, with his LDL 196 and triglycerides 123; total cholesterol is 252 and HDL 21.

Which of the following pharmacologic treatments is best to begin at this time?

- A. Atorvastatin
 - B. Gemfibrozil
 - C. Bile acid resins
 - D. Nothing; wait longer for diet to take effect
 - E. Nitroglycerin
-

323.

A 28-year-old woman takes paroxetine for depression. She was diagnosed when her family suggested she see a therapist because she lacked interest in her usual activities. Six months later, the therapist asked for evaluation because there was no improvement on this antidepressant nor with the 2 other antidepressants tried prior. She has lost 12 pounds, which she associates with multiple flu-like episodes she's experienced over the preceding 18 months.

BP 94/54, P 98

She is thin and pale. She has no tremor or diaphoresis and otherwise has no focal findings. She has a family history of thyroid disease and has been having GI symptoms during this time period.

Which of the following should be the next test you order?

- A. MRI of head
 - B. CBC
 - C. Basal plasma ACTH and cortisol ACTH stimulation test
 - D. T₃
 - E. Dental evaluation for etched enamel
-

324.

A 42-year-old woman G2P2 had menarche at age 13 followed by regular q 27-day menses with 4 days flow in the ensuing years, until 9 months ago. She also reports increased pigmented facial hair and some scalp hair thinning.

BP 138/84

Facial and trunk acne is present

Temporalis hair recession

Deep voice

Pigmented hair on chin, chest, shoulders, extremities, and gluteal region

Laboratory is ordered and the results show: DHEA-S extremely high (1183), testosterone high (371 ng/dL), LH low (2.7), FSH low (2.2), estradiol low (31).

Which of the following is the most likely diagnosis?

- A. Menopause
- B. PCOS (polycystic ovary syndrome)
- C. Hypogonadotropic hypogonadism
- D. Adrenal cancer
- E. Hyperthyroidism

325.

A 32-year-old man comes to see you because his wife cannot conceive. He reports normal development, was taller than his peers, and he's had no change in sexual interest or activity.

BP 112/68, P 88, Wt 220, Ht 71", Span 72"

He has 2 cm of glandular tissue under the areola, minimally excess abdominal adipose, and testes 2 x 1 cm. His scrotum has rugae and terminal hair.

Which of the following is the most likely diagnosis?

- A. Kallmann syndrome
 - B. Klinefelter syndrome
 - C. Pituitary adenoma
 - D. Prolactinoma
 - E. Hereditary small gonad syndrome
-

326.

A 24-year-old woman comes in tearfully to discuss her Type 1 diabetes. She is on insulin lispro and NPH. She has increased her NPH from 14 units in the morning and 12 units at bedtime to 16 units in the morning and 16 units at bedtime because she has high morning glucoses. Her log shows FBS 42→325, noon 112→201, supper 68→167, bedtime 189→220. She notes that her sleep is restless, and she has been having increased nightmares and never feels rested in the morning.

Which of the following is the next appropriate step in patient care?

- A. Make no changes at this time.
 - B. Increase both supper insulin lispro and bedtime NPH.
 - C. Increase a.m. insulin lispro and NPH, and increase bedtime NPH.
 - D. Decrease noon insulin lispro and a.m. NPH, and increase bedtime NPH.
 - E. Increase the supper insulin lispro, and decrease the bedtime NPH.
-

327.

A patient with a severe asthma attack was treated with prednisone 50 mg daily for 5 days. The pulmonologist says the patient no longer needs steroids and signs off on the case.

Which of the following steps should you take now?

- A. Stop the prednisone abruptly.
 - B. Switch to 5 mg/day and periodically check for return of adrenal function.
 - C. CRH stimulation test to assess pituitary function.
 - D. An insulin tolerance test to assess hypothalamic function.
 - E. ACTH stimulation test to assess adrenal function.
-

328.

A 78-year-old woman was last seen for her annual Pap smear 1 year ago. At that time she was fatigued and had several yeast infections, which she treated with OTC preparations. She continues to be fatigued, has nocturia twice nightly, and has had several yeast infections. She takes no medications and occasionally takes calcium. Her mother died of an MI, her aunt of a stroke, and her uncle was on dialysis due to diabetes before his death due to myocardial infarction. You find BP 146/94; P 84, regular; Wt 187 lbs.; Ht 65.5". There is no retinopathy, no bruit; she has decreased sensation to fine touch.

FSBG (fasting serum blood glucose) 238 mg/dL, cholesterol 287 mg/dL, triglycerides 681 mg/dL

After receiving these numbers, you start her on diet, exercise, and an ACE inhibitor for her hypertension. She returns in 3 months with the following values:

FSBG is 189 mg/dL, cholesterol 224 mg/dL, triglycerides 187 mg/dL, weight 182 lbs, and BP 122/78. Her creatinine is 0.7 mg/dL.

At this point, which of the following is the next appropriate treatment?

- A. Metformin
 - B. Rosiglitazone
 - C. Glyburide
 - D. NPH insulin
 - E. Nothing
-

329.

You are asked to see a 68-year-old woman who became dizzy and fell last week. She reports becoming shaky, sweaty, and slumping to the floor while shopping at about 11:30 a.m. She recovered after lying on the floor for several minutes and eating candy. She takes calcium and multivitamins. Past medical history includes a Billroth II for ulcers in 1962, C-section, and penicillin allergy. She had met a friend for breakfast at a donut shop that morning. Her usual breakfast consists of a boiled egg, brown toast and butter, and fruit. She generally eats a late-morning snack, and a meat-containing salad and hard roll for lunch at 1 p.m. She occasionally has similar, milder episodes, but in the past 10 years has had very few such episodes. She runs 3 miles three times weekly, does yoga daily, and works out with free weights twice weekly. She has no cardiac history, and her parents are still alive in their late 80s, as are their siblings. Physical exam reveals BP 116/78 and P 68. Musculature in upper arms and calves is well developed and delineated. Other than well-healed surgical scars on the abdomen, the exam is physiologic.

The above is a prelude to asking you to identify “Whipple’s triad.”

Which of the following comprise Whipple’s triad?

- A. Low serum glucose, abdominal pathology, and symptom relief with glucose
 - B. Symptoms of hypoglycemia, pancreatic lesion, and low serum glucose
 - C. Symptoms of hypoglycemia, low serum glucose, and symptom relief with glucose
 - D. High serum glucose, symptom relief with insulin, and symptoms of hyperglycemia
 - E. Symptoms of hypoglycemia, pancreatic lesion, and high serum glucose
-

330.

A 69-year-old man tells you he has leg pain just above the knee, which limits his hobby of gardening and prevents him from dancing. The pain has no aggravating or alleviating features. Physical exam finds Heberden nodes and crepitance without effusion or pain on motion in the knees. Neurologic exam is physiologic. His chemistry panel reveals normal liver enzymes and bilirubin, CBC, and calcium. An alkaline phosphatase is 3 times normal.

Which of the following is the most likely diagnosis?

- A. Stress fracture
 - B. Osteoarthritis
 - C. Iron deficiency anemia
 - D. Chondrocalcinosis
 - E. Paget disease
-

331.

A 35-year-old transcriptionist is referred to you for evaluation. During the past 4 months, she has noted increasing fatigue, weight loss of 12 pounds despite a good appetite, and increased diaphoresis. Recently, she has noticed a tremor in her right hand that makes typing more difficult. Also, she has had severe mood swings and frequently gets angry with herself for outbursts that she makes to other people.

FAMILY HISTORY: Mother with surgery for “overactive” thyroid

PHYSICAL EXAMINATION: Firm, nontender thyroid enlargement about twice normal size
Fine tremor of outstretched arms
Generalized hyperreflexia

LABORATORY:

Serum Thyroxine:	15.0 micrograms/dL (high)
Serum T ₃ :	290 ng/dL (high)
Resin T ₃ uptake:	40.1% (high)
TSH:	< 0.1 μ IU/mL
Radioactive iodine uptake (RAIU):	24-hour uptake of 2.7% (normal 5–25%)

All of the following are possible diagnoses for this patient except:

- A. Silent thyroiditis
 - B. Subacute thyroiditis
 - C. Struma ovarii
 - D. Graves disease
 - E. Excess iodine ingestion
-

332.

A 21-year-old man is brought into the emergency department after being run over by a motorcycle. On routine lab he is found to have a serum calcium of 11.5 mg/dL and a phosphorus of 3.0 mg/dL (normal is 2.5–4.5 mg/dL). He remembers that his mother told him that his sister or brother might have a “high calcium,” but that is all he knows.

His examination is normal except for a tire mark on his chest.

LABORATORY: Serum intact PTH of 72 pg/mL (normal 10–65 pg/mL)
 1,25-dihydroxyvitamin D of 40 pg/mL (normal 15–60 pg/mL)
 24-hour urinary calcium of 30 mg (normal 100–300 mg/24 hour)

What is the appropriate therapy at this time?

- A. Low calcium diet
 - B. Bilateral neck exploratory surgery
 - C. Do nothing at this point
 - D. Oral phosphates
 - E. Steroids
-

333.

A 60-year-old diabetic woman presents to your clinic as a referral from your favorite orthopedist following a wrist fracture in which he found a serum calcium of 10.9 mg/dL. She reports that she has been having “bone pain” in her hips and knees for several years. Looking over her records, you see that she has been on dialysis for 5 years or so.

Which of the following is most likely true?

- A. Hypercalcemia in this setting is usually acute and life-threatening.
 - B. The patient likely has tertiary hyperparathyroidism.
 - C. Osteitis fibrosa is unlikely.
 - D. Aluminum salts are contraindicated.
 - E. Parathyroid hormone half-life is decreased.
-

334.

A 37-year-old female, 3 months postpartum, presents with tremor, palpitations, and heat intolerance. She is no longer nursing.

On physical exam, she has a BP of 160/60, P 120, and T 99° F. She has an enlarged thyroid on exam.

Lab: TSH: < 0.03 (low), T₄: 20 (high), T₃RU: 40% (high)

Which of the following tests would be most useful in planning therapy?

- A. Radioactive iodine uptake
 - B. Thyroid ultrasound
 - C. CT scan
 - D. Thyroglobulin
-

335.

A 70-year-old female presents with complaints of constipation and leg and back pain. She had problems with rectal bleeding 6 months ago and was found to have a polyp on colonoscopy. This was removed, and the site cauterized. At the time of workup, she had a Hct of 27% with an MCV of 78. She was started on FeSO_4 .

Two months ago, she returned for her annual exam and was found to be in good shape except for complaints of constipation and pruritus. Her cholesterol was 300, and she was started on simvastatin. Today, she has even more problems with constipation than before. Her pruritus continues.

MEDICATIONS: Simvastatin 20 mg qd, FeSO_4 325 mg tid, levothyroxine sodium 0.1 mg qd, ranitidine, psyllium 1 TBS qd, felodipine 10 mg qd.

On exam, VS: BP 120/70; P 55; Chest clear; Abd soft, tympanitic; Skin—xerosis present; Rectal—heme-negative; Ext—tenderness over the muscles on palpation.

Which of the following options would best explain her symptoms?

- A. Drug interaction between simvastatin and felodipine
- B. Colon cancer
- C. Rhabdomyolysis due to HMG CoA reductase inhibitor
- D. Interaction between levothyroxine sodium and FeSO_4
- E. Interaction between ranitidine and simvastatin

336.

Which of the following individuals has prediabetes?

- A. 50-year-old woman with a HbA1c of 6.8%
- B. 50-year-old man with fasting plasma glucose of 113 mg/dL
- C. 50-year-old man with plasma glucose of 232 two hours after receiving 75 g of oral glucose
- D. 50-year-old woman with a plasma glucose of 130 two hours after receiving 75 g of oral glucose
- E. 50-year-old obese man with a fasting glucose of 99 mg/dL

337.

A 24-year-old with Type 1 diabetes has had an uneventful pregnancy and is about to deliver her first newborn today. Her A1c has been maintained between 6.5 and 7% using a continuous insulin infusion pump.

Which of the following is most likely to occur in the first 24 hours after delivery?

- A. Her insulin requirements will increase by 50%.
 - B. Her insulin requirements will decrease by 50%.
 - C. She will not need any insulin in the first few days after delivery.
 - D. She will be able to resume prepregnancy doses of insulin shortly after delivery.
 - E. The baby develops hyperglycemia.
-

338.

A 70-year-old woman with neck pain is noted to have osteoarthritis and an enlarged right lobe of the thyroid on neck CT. She has no complaints except for neck pain, and her exam and a serum TSH are both normal. A thyroid ultrasound shows a normal size thyroid with a 6-mm hypoechoic nodule in the right lobe.

What is the next step in evaluation of this nodule?

- A. Ultrasound-guided fine needle aspiration.
 - B. Technetium scan.
 - C. Measure thyroid peroxidase antibodies.
 - D. Repeat ultrasound in 1 year.
 - E. Repeat ultrasound in 6 months.
-

339.

A 20-year-old woman with Graves disease is in the 2nd trimester of her pregnancy when she presents for evaluation in your office. She is taking 30 mg of methimazole daily, her weight is increasing appropriately, and she has mild heat intolerance and tachycardia. On exam, she has a diffusely enlarged thyroid with no palpable nodules, bilateral proptosis, a pulse rate of 94, and a blood pressure of 120/80. Her free T₄ today is 1.0 (0.9–1.5) and her TSH is 3.4 (0.2–4.2).

What should you recommend now?

- A. Stop methimazole; start propylthiouracil and a beta-blocker.
 - B. Lower the dose of methimazole.
 - C. Stop methimazole and order radioactive iodine uptake.
 - D. Continue current dose of methimazole.
 - E. Refer for surgical thyroidectomy.
-

340.

A 20-year-old nursing student complains of palpitations and heat intolerance. She wants to lose weight and uses a “diet pill,” which she buys over the counter. Her roommate has hypothyroidism and takes levothyroxine. On exam, her BP is 135/85, pulse is 100; she is mildly diaphoretic and has a mild tremor. Her TSH is 0.01 (0.2–4.2), and a technetium scan of the thyroid shows no uptake. You are concerned that she may be taking thyroid hormone surreptitiously.

Which of the following tests will confirm that suspicion?

- A. Free T₄
 - B. Free T₃
 - C. Thyroglobulin
 - D. Thyroid ultrasound
 - E. Total T₄
-

341.

A 38-year-old man presents for a health care maintenance visit. He reports that his diet is poor and he has been unable to exercise due to the demands of his job and home life. His current medical history includes hypertension, which is well controlled with lisinopril and hydrochlorothiazide. He reports current smoking of 1/2 ppd.

On physical examination, his BMI is 38. Blood pressure is 127/76, heart rate 56/min. Besides obesity, the remainder of the physical examination is unremarkable.

LABORATORY: Hemoglobin A1c: 6.3%

Which of the following interventions would be most effective in preventing diabetes in this patient?

- A. Smoking cessation
 - B. Decreased carbohydrate intake
 - C. Weight loss
 - D. Metformin
 - E. Pioglitazone
-

HEMATOLOGY

342.

A 40-year-old woman with a deep venous thrombosis is started on coumadin and develops skin necrosis.

Which of the following deficiencies should be considered in her?

- A. Antithrombin III deficiency
 - B. Protein C deficiency
 - C. Factor VIII deficiency
 - D. Factor XIII deficiency
 - E. Plasminogen deficiency
-

343.

A 19-year-old African-American man is being evaluated for a pre-sport physical. His history and physical examination are normal. Laboratory values are listed below.

CBC: WBC 8,000/mm³ with normal differential
Hemoglobin 16.0 mg/dL
Hematocrit 55%
MCV 71 fL

You order a hemoglobin electrophoresis and it is normal.

Which of the following explains his laboratory findings?

- A. Sickle cell trait
 - B. Beta-thalassemia trait
 - C. Alpha-thalassemia trait
 - D. Sickle beta-thalassemia
 - E. Sickle cell disease
-

344.

A 30-year-old woman presents with severe anemia that has been refractory for almost 4 months. She has required monthly transfusions of 2 units of packed red blood cells during this time period. One week ago she received a transfusion of 2 units of packed red blood cells for a hematocrit of 21%. Two days after receiving the transfusion, her hematocrit was noted to be 27%. However, today (1 week after the transfusion), her hematocrit is again 21%. She has been ill for 2 days with low-grade fever, and her husband has noted that she is jaundiced in appearance.

Which of the following is not correct?

- A. ABO incompatibility is unlikely.
- B. Intravascular hemolysis has likely occurred.
- C. A potential Rh mismatch may have occurred, and therefore the Rh status of donor and recipient should be rechecked.
- D. If the patient is Rh-negative, you need to look for anti-Kell or anti-Duffy antibodies in the patient's serum.
- E. A direct and/or indirect Coombs test should be positive.

345.

A 20-year-old woman is referred to you by her dentist. Today she underwent dental extraction, and the dentist had difficulty controlling the bleeding. Family history is significant for a few family members with increased tendency for bleeding, including male and female relatives.

LABORATORY: Platelet count is 358,000/ μ L
Factor VIII coagulant activity is 56% normal
von Willebrand factor (vWF) antigen is 47% normal
Ristocetin cofactor is 14% normal
A normal spectrum of vWF multimers in the patient's plasma on SDS-agarose electrophoresis is found

Which of the following drugs should she avoid?

- A. Prednisone
B. Acetaminophen
C. Aspirin
D. Ranitidine
E. Itraconazole

346.

A 25-year-old African-American woman with a history of menorrhagia and dysmenorrhea presents to you with the chief complaint of fatigue. She says that she “wears out” halfway through the day and needs to take a nap frequently when she gets home from work as a personal trainer.

LABORATORY:	Hemoglobin:	10.5 mg/dL
	MCV:	69
	Peripheral smear:	Microcytosis

Which of the following is not a likely diagnosis?

- A. Iron deficiency anemia
- B. Anemia of chronic disease
- C. Myelodysplastic syndrome
- D. Thalassemia
- E. Sideroblastic anemia

347.

A 45-year-old man, with a history of an enlarged liver and elevated hematocrit without apparent cause, had been well until earlier today, when he developed sudden onset of pain in his right upper quadrant.

PAST MEDICAL HISTORY: General: Afebrile
 Vitals: BP 140/90, P 100, RR 18
 HEENT: WNL
 Heart: RRR without murmurs, rubs, or gallops
 Lungs: CTA

	Abdomen:	Markedly enlarged liver that is very tender on its edge Enlarged spleen Abdominal fluid wave
LABORATORY:	CBC:	Pending: but he has known hemoglobins in the 17–18 mg/dL range
	AST:	80
	ALT:	70

Which of the following procedures should you consider next?

- A. Hepatic venography or magnetic resonance (MR) venography
 - B. Paracentesis
 - C. Ultrasound without Dopplers
 - D. Radionuclide liver-spleen scan
-

348.

You are seeing a patient who has protein C deficiency. She is doing well and asks about future generations and other general questions about protein C deficiency.

Which of the following is not true about protein C deficiency?

- A. It may be autosomal dominant in inheritance.
 - B. Normal levels of protein C rules out the disease.
 - C. Spontaneous thrombosis may occur in the absence of thrombotic risk factors.
 - D. The most common sites of thrombosis include the lower extremity deep veins, iliofemoral veins, and mesenteric veins.
 - E. It can be acquired as well as inherited.
-

349.

A 30-year-old male patient presents with new-onset night sweats and weight loss. He was diagnosed with stage IIIB Hodgkin lymphoma 2 years ago, was treated with 6 cycles of ABVD (Adriamycin® [doxorubicin], bleomycin, vinblastine, and dacarbazine), and has been in remission. His labs are within normal limits except for an elevated LDH of 400. You order a CT scan of the chest, abdomen, and pelvis, which shows extensive lymphadenopathy. Excisional biopsy of his axillary lymph nodes reveals classical Hodgkin disease.

What is the best treatment option?

- A. Radiation therapy consult for mantle irradiation.
 - B. Repeat ABVD, then follow imaging closely.
 - C. Rituximab combined with ABVD.
 - D. Brentuximab vedotin as induction and maintenance.
 - E. Salvage chemo/immunotherapy, followed by autologous stem cell transplantation.
-

350.

An 84-year-old female presents to her internist with a 6-week history of back pain, weight loss, and night sweats. She has a history of NIDDM and a previous history of cholecystectomy.

Examination reveals an emaciated, but alert elderly female. Neck is supple. No lymphadenopathy, but one-finger splenomegaly detected. Asymmetric Heberden and Bouchard nodes are noted without erythema and warmth over the DIPs and PIPs, respectively.

LABS: ESR = 123, Hb = 9.3, creatinine = 2.6.
Serum protein electrophoresis reveals a monoclonal spike.
Urine is positive for Bence-Jones protein.
Skeletal survey reveals lytic lesions.

Which of the following is the most likely cause of her bone pain?

- A. Amyloid
 - B. Gout
 - C. Osteoarthritis
 - D. Multiple myeloma
 - E. Ochronosis
-

351.

A 28-year-old woman with sickle cell anemia has been fairly well during the last few years. She presents today, however, with severe pain in her chest and abdomen. She notes that about a week ago she had an upper respiratory infection but seemed to recover from it without incident. She has had some mild nausea with the pain.

PAST MEDICAL HISTORY: BP 110/70, P 110, RR 25, Temp 99.2° F
HEENT: PERRLA, EOMI; sclera icteric
TMs clear
Throat clear
Neck: Supple without masses
Heart: RRR with II/VI systolic flow murmur
Lungs: CTA
Abdomen: No hepatosplenomegaly noted; nontender examination
Extremities: No cyanosis, clubbing, or edema noted

Laboratory evaluation is consistent with accelerated hemolysis. CXR and abdominal x-rays reveal no abnormalities.

Which is the most appropriate initial intervention/procedure at this point?

- A. Analgesia only
 - B. Hydroxyurea
 - C. Exploratory laparotomy
 - D. Antipneumococcal antibiotics
 - E. Hydration and analgesia
-

352.

A 30-year-old woman was diagnosed with hyperthyroidism. She was placed on propylthiouracil (PTU) about 4 weeks ago. She presents to you today with painful mouth ulcers. She has not had any other problems, and she notes that her tremors from her hyperthyroidism have resolved.

PHYSICAL EXAMINATION: Vital signs normal
HEENT: Mild exophthalmos (no change)
 PERRLA, EOMI
Throat: Small oral aphthous-like ulcers on her buccal mucosa
Neck: Supple
Heart: RRR without murmurs, rubs, or gallops
Lungs: CTA
Abdomen: No hepatosplenomegaly
Extremities: No cyanosis, clubbing, or edema

LABORATORY: WBC 150/ μ L (10% neutrophils, 80% lymphocytes, 10% monocytes)
Rest of CBC (hemoglobin, hematocrit, and platelets) normal

Which of the following should be done next?

- A. Stop PTU and schedule a follow-up appointment.
- B. Stop PTU and arrange for HLA typing of any available siblings.
- C. Stop PTU and start prednisone.
- D. Stop PTU and start piperacillin/tazobactam and ciprofloxacin.
- E. Continue PTU and start prednisone.

353.

A 21-year-old woman has been healthy her whole life. She presents to the emergency department with confusion and fever. Her boyfriend has noted this morning that she appeared to be yellow.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Works as a waitress at a local pub
Doesn't smoke or drink alcohol

FAMILY HISTORY: Negative

REVIEW OF SYSTEMS: Faint rash noted by boyfriend

PAST MEDICAL HISTORY: BP 100/70, RR 20, Temp 102° F, P 100
HEENT: PERRLA, EOMI
 Scleral icterus
 TMs clear
Throat: Palatal petechiae
Neck: Supple
Heart: RRR without murmurs or rubs
Lungs: CTA

Abdomen: Benign
Extremities: Scattered petechiae on her lower extremities

LABORATORY: Hematocrit: 28%
WBC: 13,000/ μ L with 85% neutrophils
Platelet count: 11,000/ μ L
Total bilirubin: 6 mg/dL
Direct bilirubin: 0.7 mg/dL
BUN: 70 mg/dL
Creatinine: 4.8 mg/dL
PT: 12 secs (normal)
PTT: 32 secs (normal)
Peripheral smear: Fragmented red blood cells and nucleated red blood cells

Which of the following is the best initial therapy for this condition?

- A. High-dose glucocorticoids
 - B. High-dose aspirin therapy
 - C. Low-dose aspirin therapy
 - D. Plasmapheresis
 - E. Splenectomy
-

354.

A 40-year-old woman with sickle cell disease presents with profound fatigue and a hematocrit of 18%. She requires transfusions on a frequent basis. Four units of blood are ordered for type and match, but the blood bank calls back and says that it will take at least a day before they can get the packed cells ready for transfusion.

Which of the following is the most likely reason for this problem in providing appropriate blood for this patient?

- A. She has a rare blood group.
 - B. She has developed autoantibodies in her serum.
 - C. She has developed alloantibodies in her serum.
 - D. Careful screening is required in sickle cell patients to prevent blood-borne infection with organisms like *Yersinia*.
 - E. She has developed anti-HLA antibodies in her serum.
-

355.

A 60-year-old woman presents with the diagnosis of pernicious anemia. She has antiparietal cell antibodies. She is about to be started on therapy for her anemia.

Which of the following is something to be concerned about as therapy begins?

- A. Severe hypokalemia
- B. Severe hypocalcemia
- C. Severe hyperkalemia
- D. Severe hypercalcemia
- E. No reticulocytosis for 3 weeks

356.

A 40-year-old woman is diagnosed with anemia. You are concerned about the possibility of pernicious anemia in her because she has evidence of a megaloblastic anemia on her peripheral smear.

Which of the following is true concerning pernicious anemia?

- A. Antiparietal cell antibodies are found in fewer than 50% of persons with pernicious anemia.
 - B. Folate in large doses can correct the megaloblastic anemia, and it does correct the neurologic abnormalities.
 - C. Folate in large doses cannot correct megaloblastic anemia.
 - D. Folate in large doses can correct the megaloblastic anemia, but it does not correct the neurologic abnormalities.
 - E. Gastrin levels are usually decreased in patients with pernicious anemia.
-

357.

A 40-year-old woman presents with a long history of rheumatoid arthritis. She is being evaluated for anemia and is diagnosed as most likely having “anemia of chronic disease.”

Which of the following is a likely mechanism that may cause this type of anemia?

- A. Iron deficiency of the bone marrow
 - B. Defective porphyrin synthesis
 - C. Hemolysis
 - D. Lengthening of red cell lifespan, resulting in impaired feedback loop
 - E. Abnormalities of iron metabolism with trapping of iron in macrophages
-

358.

An 18-year-old woman with AIDS presents with hemolysis after taking dapsone for her *Pneumocystis* prophylaxis. She is fine now and is on pentamidine mist therapy.

Which of the following is true about glucose-6-phosphate dehydrogenase (G6PD) deficiency?

- A. The Mediterranean variant is less severe than that occurring in African-American patients.
 - B. It is autosomally transmitted.
 - C. Hemolysis is commonly induced by infection.
 - D. G6PD levels are usually increased in older red cells.
 - E. Heinz bodies are seen on Wright staining of peripheral smears.
-

359.

A 45-year-old woman presents with a pure red blood cell aplasia with normal white cell and platelet production. Various studies are done in her workup.

Which of the following would you expect?

- A. A reticulocyte count greater than 3%
 - B. Normochromic, normocytic red blood cells
 - C. Decreased serum erythropoietin levels
 - D. Ferrokinetic studies to show increased iron turnover
 - E. A bone marrow examination to show marked hypocellularity
-

360.

A 25-year-old woman has had severe menorrhagia and is referred to you by her gynecologist. She reports that she has had difficulty with this as long as she can remember and frequently has to go on iron supplements for treatment of iron deficiency anemia. She is on no medications.

PAST MEDICAL HISTORY: Essentially negative

FAMILY HISTORY: Sister with similar bleeding tendencies; bleeds easily after minor trauma

SOCIAL HISTORY: Doesn't smoke or drink
Works as a gas station attendant

PHYSICAL EXAMINATION: Unremarkable.

LABORATORY: Platelet count 300,000/ μ L
PT: 24 seconds (control 12 seconds)
PTT: 27 seconds (control 29 seconds)

Based on her findings, which of the following laboratory tests should you order now?

- A. Check an α_2 -antiplasmin level.
 - B. Check Factor VIII level.
 - C. Screen for coagulation factor inhibitors.
 - D. Check Factor VII level.
-

361.

Which of the following conditions will give you an elevated PTT and a normal PT, but no clinical bleeding disorder?

- A. Factor XII deficiency
- B. Platelet deficiency
- C. von Willebrand disease
- D. Factor VII deficiency
- E. Glanzmann thrombasthenia

362.

Which of the following is true in Bernard-Soulier syndrome (giant platelet)?

- A. Patients have an extremely high platelet count.
- B. Patients lack glycoprotein IIb-IIIa complex.
- C. Patients have increased platelet adhesion.
- D. Patients lack glycoprotein Ib.
- E. It is an X-linked congenital disease (only males are affected).

363.

An 18-year-old woman with a severe bleeding disorder has recently been diagnosed with Glanzmann thrombasthenia.

Which of the following is true about her disease?

- A. It is due to the inability to bind to von Willebrand factor.
- B. It is due to a deficiency of platelet integrin alpha IIb beta 3.
- C. It is an autosomal dominant disease.
- D. Platelet counts are usually below 20,000/mL.
- E. Fibrinogen can cross-connect in this disease.

364.

A 30-year-old African-American woman with a history of menorrhagia and dysmenorrhea presents to you with the chief complaint of fatigue. She says that she “wears out” halfway through the day and needs to take a nap frequently when she gets home from work as a personal trainer.

PAST MEDICAL HISTORY:	Skin:	Pallor
	HEENT:	Cheilosis
	Extremities:	Spoon nails
	Heart:	Tachycardic with any type of activity

Which of the following is the most likely diagnosis?

- A. Myelodysplastic syndrome
- B. Occult GI bleed
- C. Colon carcinoma
- D. Ovarian carcinoma
- E. Iron deficiency anemia

365.

A 65-year-old man presents to your office complaining of fatigue. He has had exertional dyspnea for 3 months, but has not had any chest discomfort during this time period. His wife cooks 3 meals a day for him, and he has “a good steak” on a weekly basis.

PAST MEDICAL HISTORY: HTN x 30 years
Currently on hydrochlorothiazide

SOCIAL HISTORY: Smoking: 1 pack/day for 30 years
Alcohol: 1–2 six-packs of beer daily

PHYSICAL EXAMINATION: Vitals: BP 180/70, HR 100, Temp 98.5° F, RR 15
HEENT: Anicteric sclera
PERRLA
Conjunctiva are very pale
No cheilosis
Heart: RRR with II/VI systolic murmur heard in the past without change
Lungs: Coarse wheezing
Abdomen: Liver palpable and nontender
Spleen tip not palpated
Extremities: Mild clubbing noted of fingers

LABORATORY: WBC: 4,000/ μ L
Hematocrit: 27%
Platelets: 99,000/ μ L
MCV: 109
Reticulocyte count: 0.8%
Peripheral smear: Shows targeting of large red cells without a leukoerythroblastic picture
AST: 70
ALT: 50
LDL: Normal

Which of the following is the most likely etiology for his anemia?

- A. Dietary vitamin B₁₂ deficiency
 - B. Myelodysplastic syndrome
 - C. Hemolysis
 - D. Iron deficiency anemia
 - E. Alcoholism
-

366.

A 65-year-old man presents with fatigue. He is rather stoic and denies any other symptoms. He is “dragged in” by his wife.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Retired from the Air Force

PHYSICAL EXAMINATION (pertinent findings only):
General: Splenomegaly noted

LABORATORY:	WBC:	2800/mL
	Hematocrit:	30%
	Platelets:	100,000/mL
	Red cell:	Morphology normal; 12% monocytes, 14% granulocytes, 74% lymphocytes

A bone marrow aspirate and biopsy are done. “The aspirate is **dry**.” The biopsy is pending.

Which of the following is the most likely diagnosis for this man?

- A. Chronic myeloid leukemia
- B. Chronic lymphocytic leukemia
- C. Hairy cell leukemia
- D. Multiple myeloma
- E. Myelofibrosis

367.

A 19-year-old refugee from Iran bleeds significantly after an inguinal hernia repair. The patient has no siblings, and there is no family history of bleeding problems.

LABORATORY:

Platelet count:	Normal
Bleeding time:	Normal
PT:	Normal
PTT:	Normal

Which of the following is the most likely diagnosis?

- A. Protein S deficiency
- B. Factor XII deficiency
- C. Thrombasthenia
- D. Factor XIII deficiency
- E. Prekallikrein deficiency

368.

A 70-year-old woman with a history of primary biliary cirrhosis develops a deep vein thrombosis in her left common femoral vein. She is started on warfarin 10 mg daily. On the 3rd day of treatment, she develops a tender purpuric lesion on her right breast. It is quite large, measuring 3 x 4 cm. She is afebrile, and her INR is 2.6.

Which of the following would not be given as a treatment?

- A. Fresh frozen plasma
 - B. Vitamin K
 - C. IV heparin
 - D. Protein C concentrate
 - E. Protamine sulfate
-

369.

A 53-year-old man with Zollinger-Ellison syndrome presents with a 3-month history of anemia. Physical exam is unremarkable. He painted his house 2 years ago. He denies alcohol use except on holidays.

CURRENT MEDICATIONS: Hydrochlorothiazide
 Sildenafil
 Sertraline
 Omeprazole
 Diphenhydramine

LABORATORY: Hb: 10
 Hct: 30
 MCV: 114
 WBC: 3.6

Which of the following is the most likely cause for his anemia?

- A. Lead toxicity because of paint exposure
 - B. Alcohol
 - C. Folate deficiency due to sildenafil use
 - D. B₁₂ deficiency due to omeprazole use
 - E. Sideroblastic anemia
-

370.

Which of the following is associated with the Philadelphia chromosome, t(9,22)?

- A. Acute myelogenous leukemia (AML)
- B. Chronic lymphocytic leukemia (CLL)
- C. Chronic myelogenous leukemia (CML)
- D. Acute lymphocytic leukemia (ALL)
- E. Chronic myelodysplastic syndrome X

371.

A 20-year-old Caucasian woman is referred to you for evaluation of a hemolytic anemia that was diagnosed recently. Her laboratory values now show that she has mildly decreased hemoglobin and hematocrit levels. Her reticulocyte count is elevated, as well as her mean corpuscular hemoglobin concentration (MCHC). Osmotic fragility of the red cells is increased, and red cell survival is shortened. The physical examination reveals that she has splenomegaly. On further questioning, you determine that her grandmother and father both had gallstones at an early age.

Based on your new history findings and the laboratory results, which of the following is the most likely diagnosis?

- A. Hereditary spherocytosis
 - B. Sickle cell disease
 - C. Glucose-6-phosphate dehydrogenase deficiency
 - D. Aplastic anemia
 - E. Thalassemia
-

372.

A 45-year-old man with a history of recurrent fevers and bleeding gums has recently noted an increased tendency toward bruising and has lost 12 lbs unintentionally. He is admitted to the hospital with urosepsis, with *Klebsiella* identified as the organism. Because of other findings, a bone marrow biopsy is done and demonstrates a leukemic infiltrate, and the leukemic cells show resistance to tartrate inhibition. Cytoplasmic projections are noted.

Based on your findings, which of the following is true?

- A. A splenectomy is curative.
 - B. Neutropenia is uncommon.
 - C. This disease is associated with defects in antibody production only.
 - D. A cutaneous vasculitis may also appear in this condition.
 - E. The finding of cytoplasmic projections is uncharacteristic for this disorder.
-

373.

An 82-year-old woman presents to her local emergency department with complaints of a mass under her tongue. Evaluation reveals it to be a large hematoma, and she is sent home with instructions to use local measures such as ice for treatment. A week later, the mass resolves, but she develops tender swelling in her left thigh with no known trauma to the area.

LABORATORY:	CBC:	WBC 11,300/mm ³ with normal differential
		Hgb 10
		Hct 30
		MCV 78
		Plts 202,000
		PT 11.5 secs
		PTT 80 secs
		Fibrinogen 350

The next appropriate studies for this patient's workup would be which of the following?

- A. Lupus anticoagulant and anticardiolipin studies
 - B. 1:1 mix of patient and normal to measure the PTT
 - C. Repeat CBC
 - D. Platelet aggregation studies
-

ONCOLOGY

374.

A 50-year-old woman presents with acute leukemia. A bone marrow is done and shows that she has decreased normal elements but overall hypercellularity due to leukemic blasts. She has pancytopenia on peripheral smear. It is noted that she does not have any significant palpable lymphadenopathy or splenomegaly.

Which of the following is the most likely diagnosis?

- A. Acute lymphoblastic leukemia (ALL)
 - B. Acute myelogenous leukemia (AML)
 - C. CLL
 - D. Hairy cell leukemia
 - E. Prolymphocytic leukemia
-

375.

A 30-year-old woman presents with a history of fatigue and pallor noted by her family. She has had low-grade fevers of 99° to 100° for the past several weeks. She has noted easy bruisability and bleeding gums when she brushes her teeth.

PAST MEDICAL HISTORY: Negative; had 2 normal deliveries 5 and 7 years ago
Pap smear done 2 years ago was normal
Breast exams done monthly reveal no masses

SOCIAL HISTORY: Doesn't smoke or drink alcohol
Attends physician assistant (PA) school
Lives at home with husband (carpenter) and 2 children ages 7, 5

FAMILY HISTORY: Mother alive and healthy; HTN
Father alive and healthy; HTN
Maternal aunt with breast cancer at age 45

REVIEW OF SYSTEMS: Increased fatigue over the past 2 weeks
Can't walk up 2 flights of stairs without stopping to catch her breath
Nicked herself shaving last week, and it took 20 minutes to stop the bleeding

PHYSICAL EXAMINATION: Bruises noted over her calves and thighs
Few petechiae on her hard palate as well as her pre-tibial areas and arms where blood pressure cuff was located
Bleeding gums noted
Severe gingival hyperplasia
No splenomegaly

LABORATORY: Peripheral smear: Pancytopenia without blast forms seen

Which of the following is the most likely etiology for her condition?

- A. Acute monocytic leukemia
 - B. Acute myelogenous leukemia
 - C. Acute erythroleukemia
 - D. Endocarditis
-

376.

A 16-year-old male with newly diagnosed ALL (acute lymphocytic leukemia) is going to undergo standard chemotherapy with prednisone, vincristine, and daunorubicin.

With regards to vincristine, which of the following toxicities should you be most concerned about?

- A. Cardiac toxicity
 - B. Glaucoma
 - C. Interstitial lung fibrosis
 - D. Neurotoxicity
 - E. Spastic colon
-

377.

You are presented a man with pancytopenia and prominent splenomegaly. You are concerned about the possibility of hairy cell leukemia because you note one lymphocyte with “cytoplasmic projections.”

Which of the following is true concerning hairy cell leukemia?

- A. Bone marrow aspirate will likely be quite useful in showing cells.
 - B. Bone marrow biopsy will not show a hypercellular picture.
 - C. On immunophenotyping, CD11c marker is likely to be present.
 - D. 2-chlorodeoxyadenosine (2-CdA) is unlikely to produce complete remission in most patients.
 - E. Hairy cell leukemia is a T-cell malignancy.
-

378.

A 45-year-old female with three 1st degree relatives diagnosed with invasive breast cancer in their 50s underwent a routine screening mammogram. She was found to have a 1-cm breast density with irregular borders and calcification, which was biopsied. The biopsy shows that this was infiltrating ductal carcinoma, and markers showed that this was ER/PR-positive and *HER2/neu*-negative. She underwent a lumpectomy with clear margins of 12 mm, with sentinel LN biopsy, which was negative. This was followed by radiation. She was then placed on tamoxifen by her oncologist. She is also set up to meet Clinical Genetics. She now presents to you for routine follow-up after her treatment was completed. She complains of episodes of sudden, intense hot feeling of her face, accompanied by a racing heartbeat, dizziness, and flushing with some associated weakness, which resolves several minutes later.

What is the best approach to management of her symptoms?

- A. This is likely to be recurrent thromboembolic disease due to tamoxifen. Immediate therapeutic enoxaparin sodium injection (Lovenox®) is indicated, followed by CT PE protocol for definitive diagnosis.
 - B. This is likely to be hot flashes; sertraline may resolve them.
 - C. This is likely a side effect of tamoxifen; venlafaxine may be beneficial.
 - D. Her symptoms indicate she may have brain metastasis; CNS imaging with contrast with either CT or MRI is indicated.
 - E. Evaluate for breast cancer causing pericardial effusion and tamponade.
-

379.

A 70-year-old male with a 50-pack-year h/o smoking with known limited-stage small cell lung carcinoma was treated with concurrent chemoradiation followed by prophylactic cranial radiation. When he finished his treatment 1 month ago, he had been able to cook and clean for himself. Swallowing had been a little difficult due to radiation esophagitis; he had been losing weight due to this. He attributes his weakness to his inability to eat solid food. He has been confined to a wheelchair over the past month because his legs feel extremely weak. About 2 days ago, he developed back pain, and yesterday it got so severe that he could not get out of bed. He notes he had difficulty getting to the bathroom and soiled his clothes by accident. On exam, you note point tenderness at T10. His CBC and CMP are normal.

What is the best approach to diagnosis and next step in management?

- A. Urgent MRI if diagnosis confirmed, then IV dexamethasone, followed by radiation oncology consult
 - B. Restaging scans for evaluation of progression of disease and oncology consultation for recurrent disease
 - C. EMG, followed by neurology consultation
 - D. Urgent MRI or CT of the brain with contrast, followed by intravenous steroids if diagnosis is confirmed
-

380.

A 40-year-old woman is the recipient of an HLA-matched allogenic bone marrow transplant in the treatment of her metastatic breast carcinoma. She has been severely granulocytopenic for over 2 weeks following the transplant. She is on multiple agents, including G-CSF, cyclosporin A, and corticosteroids. Currently, she is on prophylactic acyclovir and trimethoprim/sulfamethoxazole. In the last few hours, she has developed cough, tachypnea, and has fever of 102° F. Her central venous catheter site is slightly erythematous.

Which of the following is the correct treatment course?

- A. Remove the central venous catheter and start empiric broad-spectrum antibiotics, as well as either liposomal amphotericin B or caspofungin.
 - B. Remove the central venous catheter and start either liposomal amphotericin B or caspofungin only.
 - C. Do not remove the central venous catheter and await cultures.
 - D. Start either liposomal amphotericin B or caspofungin only through the catheter.
 - E. Remove the central venous catheter and start IV caspofungin and IV trimethoprim/sulfamethoxazole for presumed *Pneumocystis*.
-

381.

A 48-year-old man comes in for a routine physical examination. You do a thorough exam and find only a pigmented lesion present on his left calf. He states that the lesion has been present as long as he can remember, probably since he was born. The lesion does not itch or bleed. He has noted, however, that the color has changed a little and is no longer as homogeneous as it has been.

Which of the following statements is true?

- A. One of the first signs of malignancy is bleeding.
 - B. Change in the color of the lesion warrants further workup for potential malignancy.
 - C. One of the first signs of malignancy is tenderness.
 - D. Early diagnosis of this lesion would not affect prognosis.
 - E. It is unlikely that the lesion, if it really has been present since birth, would be malignant.
-

382.

A 60-year-old man with a history of chronic alcoholism and chronic tobacco use (2–3 packs a day for 40 years) presents as a referral from the emergency department with a new neck mass. He states that the mass is nontender and he just noticed it last week.

PHYSICAL EXAMINATION:	Vitals:	BP 110/70, P 90, RR 18, Temp 99° F
	HEENT:	PERRLA, EOMI
	TM:	Clear
	Throat:	Clear without lesions
	Neck:	3.4-cm left mid-cervical neck mass
		Mass is firm and nontender to palpation
		No fluctuance is noted
	Heart:	RRR without murmurs, rubs, or gallops
	Lungs:	Coarse breath sounds with few scattered wheezes
	Abdomen:	Liver span 10 cm, slightly tender
	Extremities:	No cyanosis, clubbing, or edema noted
	Neuro:	Grossly intact

An excisional biopsy is done of the neck mass and shows squamous cell carcinoma.

Which of the following is the most appropriate workup at this time?

- A. CT of the neck alone.
 - B. CT of the brain alone.
 - C. Neck dissection followed by radiation therapy.
 - D. Endoscopic visualization of the nasopharynx and larynx, and integrated PET-CT scan.
 - E. Proceed directly to chemotherapy.
-

383.

Which of the following hereditary disorders is not associated with the development of malignancies?

- A. Huntington disease
 - B. Fanconi anemia
 - C. Familial polyposis coli
 - D. Ataxia-telangiectasia
 - E. Neurofibromatosis
-

384.

A 50-year-old man will be starting chemotherapy for leukemia. He has been researching chemotherapeutic agents on the Internet and comes in today with lots of questions about his findings.

Which of the following statements regarding toxic effects of chemotherapy is not correct?

- A. Vincristine can be administered during periods of low blood cell counts.
 - B. Cisplatin induces nausea and frequent vomiting, but it can usually be controlled with metoclopramide or dexamethasone or both.
 - C. Anthracycline agents suppress bone marrow stem cells to a greater degree than they do more “committed” hematopoietic cells.
 - D. Cisplatin may produce hypocalcemia.
 - E. Use of melphalan has been associated with secondary leukemias.
-

385.

A 66-year-old man diagnosed with poorly differentiated adenocarcinoma of the prostate 3 years ago presents with complaints of severe pain in his left hip. Staging at that time revealed no evidence of extraprostatic spread. He underwent radiation therapy, without surgery, because he did not want to lose his ability to have sex. Until recently, he has done well. Physical examination shows marked pain with passive and active movement of the hip joint. No other abnormalities are found on physical examination.

LABORATORY:	Prostate specific antigen: Elevated
	Bone scan: New areas of uptake in the pelvis and ribs

Today, he again says he would like to forego an orchiectomy if possible. He is willing to change his mind, he says, if it will significantly improve his quality of life or chance for survival.

Which of the following is the most appropriate therapy?

- A. Biopsy one of the bony lesions first before making any decisions.
 - B. Perform an orchiectomy since it will improve survival.
 - C. Administer cisplatin.
 - D. Perform an orchiectomy and administer cisplatin since the combination will improve survival.
 - E. Administer leuprolide.
-

386.

A 55-year-old woman presents with fatigue as her chief complaint. She really has not been ill but notes that she can't seem to get through the day without a nap. Additionally, she reports that she cannot walk as far as she used to in her neighborhood mall-walking program. Her physical examination is essentially normal without any focal findings.

LABORATORY: WBC 3,800/mL with a normal differential
 Hematocrit is 28%
 Platelet count is 185,000/ μ L
 Reticulocyte count is only 1.2%
 Occult blood on her stool is hemoccult negative x 3
 Ferritin and iron studies are normal
 Peripheral blood smear does not reveal any abnormalities
 A bone marrow is done and shows infiltration with plasma cells,
 which account for nearly 35% of the total nucleated cells.

Which of the following tests is not useful in this disease process?

- A. β_2 -microglobulin
- B. Bone scan to show increased uptake
- C. 24-hour urine protein
- D. Serum protein electrophoresis
- E. Skeletal survey

387.

A 37-year-old woman presents with hirsutism and a deepening voice noted by her husband. Pelvic examination is done and shows clitorimegaly and a right ovarian mass.

Based on this limited information, which of the following is the most likely diagnosis?

- A. Ovarian cancer of epithelial cell lineage
- B. Ovarian cancer of germ cell lineage
- C. Soft tissue sarcoma
- D. Carcinoid tumor
- E. Lymphoma

388.

A 66-year-old man presents with cervical adenopathy. He reports that recently he has had "bed-soaking" night sweats. Further workup using computed tomography shows that he has a large mediastinal mass as well as abdominal periaortic adenopathy. He undergoes bone marrow biopsies that fail to show tumor. Cervical lymph node biopsy indicates infiltration with moderately immature-appearing lymphoid cells. You send off immunophenotypic studies on the node biopsy, and this shows expression of the following antigens: CD19, CD20, and CD5. Immunohistochemistry shows involvement of cyclin D₁. Cytogenetic studies show a t(11;14) translocation. Interestingly enough, his CBC is normal.

Based on these findings, which of the following is the most likely diagnosis?

- A. Hairy cell leukemia
 - B. Acute lymphoblastic leukemia
 - C. Acute myeloblastic leukemia
 - D. Diffuse large cell lymphoma
 - E. Mantle cell lymphoma (a type of mature B cell non-Hodgkin lymphoma)
-

389.

A 60-year-old man presents with stable chronic myeloid leukemia and has been managed effectively with α -interferon for 3 years. Today he presents with his laboratory showing an increased left shift in his white blood cell differential. A bone marrow is done today and shows a hypercellular marrow with increased numbers of basophils. Cytogenetic analysis reveals now there are 2 Philadelphia chromosomes per cell (previously he had only 1).

Which of the following is the most likely explanation for the cytogenetic analysis change?

- A. He has entered an accelerated or blastic phase.
 - B. This is an interferon effect.
 - C. He was misdiagnosed and actually has agnogenic myeloid myelofibrosis.
 - D. Laboratory error.
 - E. He has been exposed to ionizing radiation.
-

390.

A 25-year-old male presents with painless swelling of his scrotum for 2 months. The swelling is worsening and has begun to worry him. He is otherwise healthy. His physical exam confirms scrotal swelling with testicular enlargement.

Which of the following should the initial workup include?

- A. MRI of the head
 - B. CT of the abdomen
 - C. Ultrasound of the testicle
 - D. Laparoscopic removal of the testicle
-

391.

An 18-year-old man is diagnosed with Hodgkin disease stage IB. He receives mantle radiation only without chemotherapy.

Which of the following is a possible complication of his mantle radiation therapy?

- A. Upper extremity paresthesia
- B. Testicular carcinoma
- C. Increased incidence of AML
- D. Early-onset coronary artery disease
- E. Hyperthyroidism

392.

A 26-year-old woman is back in your office after the return of her Pap screening. It showed a low-grade squamous intraepithelial lesion. No inflammation was present. She was found to be HIV-negative; a Pap smear 2 years previously was negative.

Which of the following is the most appropriate next step in her treatment?

- A. Colposcopy
 - B. Conization
 - C. Cryo or laser therapy
 - D. Return (4–6 months) for repeat Pap smear
 - E. Hysterectomy
-

393.

A 75-year-old woman presents to your clinic complaining that yesterday her urine smelled very unusual. She is found on pelvic exam to have a firm, enlarged right ovary. Subsequent workup reveals she is *BRCA1*-positive and has an elevated CA-125 level, but the alpha-fetoprotein and hCG are normal. Transvaginal ultrasound finds the right ovary to be about twice its expected volume.

At this point, which of the following is the most likely diagnosis?

- A. Choriocarcinoma
 - B. Serous or mucinous epithelial cancer
 - C. Germ cell carcinoma
 - D. Clear cell carcinoma
 - E. Metastasized clear cell carcinoma
-

394.

Your next patient is a 30-year-old woman who presents for a pre-employment physical examination. She is ordinarily in good health and takes no medications. Family history reveals that her mother was treated for breast cancer 10 years ago at age 40. The physical exam is negative except for a subtle but suspicious breast density. The laboratory exam was unremarkable. Mammography reveals a small suspicious lesion that corresponds to the palpated mass. Ultrasound is indeterminate. A radiography-guided core needle biopsy finds invasive ductal carcinoma! At surgery, a small, approximately 1/2-cm tumor is removed that is estrogen-receptor and progesterone-receptor positive. In addition, a single positive lower axillary node is found.

Which of the following is the most appropriate course of therapy following this lumpectomy?

- A. Radiotherapy and chemotherapy
 - B. Chemotherapy, radiotherapy, and tamoxifen
 - C. Radiotherapy, no other adjuvant therapy
 - D. Chemotherapy and tamoxifen
 - E. Tamoxifen only
-

395.

A 21-year-old college student presents to your office for a physical exam for participation in varsity football. He is a smoker, social drinker, on no medications, and has been in good health. His family history is negative. The review of systems is negative except for a lump in his scrotum that he has noticed for over a month. He thinks it has been getting larger. There is no pain, and there has been no penile discharge or dysuria. Physical exam is unremarkable except for an indurated mass almost a centimeter in diameter on the left testis. Inguinal nodes palpate “normal” bilaterally. Laboratory exam is unremarkable, including LDH, liver enzymes, AFP, and β -hCG.

Which of the following is the most likely diagnosis of this mass?

- A. Nonseminoma
 - B. Seminoma
 - C. Sertoli cell cancer
 - D. Testicular torsion
 - E. Hydrocele
-

396.

A 45-year-old woman presents with findings of acute leukemia. A complete workup is done as well as physical examination. She has anemia, granulocytopenia, and thrombocytopenia.

If splenomegaly is found, which of these is the least likely diagnosis?

- A. Acute myelogenous leukemia (AML)
 - B. Chronic myelogenous leukemia (CML)
 - C. Chronic lymphocytic leukemia (CLL)
 - D. Hairy cell leukemia
 - E. Myelofibrosis
-

397.

An 18-year-old male with confirmed Hodgkin lymphoma by lymph node biopsy of a left axillary node presents for evaluation. Staging is initiated and includes a complete history and physical examination, chest x-ray, CT of his chest and abdomen, and a bone marrow aspiration and biopsy.

Complete history and physical reveal just the left-sided axillary node and occasional night sweats.

Chest x-ray: Normal; no masses

CT of chest and abdomen: Significant nodes in the retroperitoneal space
near the splenic flexure

PET scans confirm CT findings

Based on these findings, which of the following should you do next?

- A. Perform laparotomy and do splenectomy; then proceed with combination chemotherapy if nodes positive.
- B. Proceed with radiation therapy only.
- C. Perform laparotomy with splenectomy; proceed with radiation therapy.
- D. Proceed with combination chemotherapy without laparotomy.
- E. Do lymphangiogram of lower extremities; if negative, then just do radiation therapy.

398.

A 60-year-old man is diagnosed with non-Hodgkin lymphoma. Testing confirms that he has follicular lymphoma.

Which of the following is true about non-Hodgkin lymphoma?

- A. > 75% are B-cell lymphomas.
 - B. > 75% are T-cell lymphomas.
 - C. About 50% are T-cell and 50% are B-cell lymphomas.
 - D. Follicular lymphomas are typically very aggressive.
 - E. Burkitt lymphoma is seen in Africa and associated with human herpesvirus 6 infection.
-

399.

A 50-year-old man presents for workup of worsening renal failure and fatigue. It is noted that he has lytic punched out lesions of his femur and pelvis on plain films. A bone marrow aspirate and biopsy shows plasmacytosis > 10%. Urine and serum monoclonal proteins are ordered. Rouleaux formation is seen on the peripheral blood smear.

Which of the following would a bone scan in this patient be expected to show?

- A. The bone scan would be consistent with infection because these patients have increased rates of infection due to abnormal functioning immunoglobulins.
 - B. The bone scan would show “hot” spots consistent with new bone formation.
 - C. Bone scan is contraindicated in these patients because of renal failure.
 - D. A bone scan is contraindicated because of the presence of rouleaux formation.
 - E. The lytic lesions on plain films would **not** “light up” on the bone scan.
-

400.

A 50-year-old woman with breast cancer presents with confusion. You determine that her calcium level is 11 mg/dL with an albumin of 2.5 mg/dL. Besides confusion, no other abnormalities are found, and her ECG is currently unremarkable.

Which of the following should be done initially to manage her hypercalcemia?

- A. Water restriction followed by zoledronic acid
 - B. Vigorous hydration with normal saline with hydrochlorothiazide to maintain urine output at 100–150 cc/hour followed by zoledronic acid
 - C. Vigorous hydration with normal saline to maintain urine output at 100–150 cc/hour followed by zoledronic acid
 - D. Zoledronic acid alone
 - E. Vigorous hydration with 1/4 normal saline with furosemide to maintain urine output at 100–150 cc/hour followed by zoledronic acid
-

401.

A 21-year-old woman presents for routine physical examination. You discuss safe sex practices and learn that she has been sexually active for 3 years and rarely uses condoms. She notes that she has had “growths” in her genital area for the last year or so. She denies fever, chills, weight loss, or other constitutional symptoms.

PAST MEDICAL HISTORY: Negative
 Immunizations: due for Tdap booster

FAMILY HISTORY: Mother with breast cancer at age 50
 Father with HTN and alcoholism
 Sister age 15, healthy

SOCIAL HISTORY: Works as a bartender while attending college—dream is to be an accountant

REVIEW OF SYSTEMS: Negative

PHYSICAL EXAMINATION: Essentially normal except for genital warts

Which of the following increases her risk for cervical carcinoma?

- A. If the genital warts are due to human papillomavirus type 19 or 21
 - B. If the genital warts are due to human papillomavirus type 16 or 18
 - C. If the genital warts are due to human herpes virus
 - D. If the genital warts are due to *Treponema pallidum*
 - E. If the genital warts are due to varicella zoster
-

402.

A 54-year-old woman with history of rectal bleeding was found to have adenocarcinoma 3 cm below the peritoneal reflection. She had a full metastatic workup that was negative for other disease. She had resection of her tumor with primary reanastomosis. Pathology report showed a well-differentiated adenocarcinoma of the rectum with 3 of 10 adjacent lymph nodes positive for carcinoma. She has had no other medical problems except for mild hypertension.

Which of the following therapies is the most appropriate next step?

- A. Pelvic irradiation alone
 - B. Chemotherapy alone
 - C. Combination of pelvic irradiation and chemotherapy
 - D. Observation
 - E. Pelvic and mantle irradiation
-

403.

A 60-year-old man is newly diagnosed with prostate carcinoma. He underwent transrectal ultrasonography with a needle biopsy showing adenocarcinoma. He is asymptomatic, and this was found only after an elevated PSA (20 ng/dL) was discovered.

Which of the following would be the first test to order in staging for his prostate cancer?

- A. Full body plain film x-rays
 - B. Bone scan
 - C. CT of head
 - D. CEA level
 - E. Repeat PSA
-

404.

A 40-year-old Caucasian male comes in for a routine physical examination for work. He is healthy and reports no medical problems.

SOCIAL HISTORY: Doesn't smoke
 Drinks 2 beers on the weekends
 Lives with boyfriend

PHYSICAL EXAMINATION: HEENT: PERRLA, EOMI
 TM: Clear
 Throat: Clear
 Heart: RRR without murmurs, rubs, or gallops
 Lungs: CTA
 Abdomen: + Bowel sounds, no hepatosplenomegaly
 Extremities: No cyanosis, clubbing, or edema
 GU: Tanner 5 male;
 Solid firm mass in left testicle

He is found to have a seminoma with stage I. He undergoes orchiectomy and completes radiation therapy without complications.

Which of the following is his expected cure rate?

- A. 95%
 - B. 50%
 - C. Not enough information to ascertain
 - D. 35%
 - E. 10%
-

405.

A 50-year-old post-menopausal woman is diagnosed with breast cancer. She has a 5-cm primary lesion, is node-negative, and is hormone receptor positive (HR+).

Which of the following is/are the best treatment regimens for her?

- A. Lumpectomy and radiation therapy
 - B. Modified radical mastectomy and chemotherapy but not tamoxifen
 - C. Modified radical mastectomy alone
 - D. Modified radical mastectomy and tamoxifen for 5 years
 - E. Modified radical mastectomy with chemotherapy and tamoxifen
-

406.

A 35-year-old woman is diagnosed with breast cancer. She has a 5-cm primary lesion, is node-negative, and is hormone receptor positive (HR+).

Which of the following is/are the best treatment regimens for her?

- A. Modified radical mastectomy and tamoxifen for 5 years
 - B. Modified radical mastectomy with chemotherapy and tamoxifen for 5 years
 - C. Lumpectomy and radiation therapy
 - D. Modified radical mastectomy and chemotherapy but not tamoxifen
 - E. Modified radical mastectomy alone
-

407.

A 28-year-old woman is recently diagnosed with ovarian carcinoma. She is doing well and has finished all of her chemotherapy. She took birth control pills and wonders if they are a risk and also knows that her sisters are on birth control pills.

She asks you what risk factors are associated with her cancer, because she is concerned for her sisters as well as her nieces.

Which of the following is not associated with increased risk of ovarian cancer?

- A. Positive family history
 - B. Nulliparity
 - C. *BRCA1* positivity
 - D. *BRCA2* positivity
 - E. Oral contraceptive use
-

408.

A 70-year-old male smoker presents with severe back pain and pain in the pelvic girdle. X-ray shows osteoporosis of the spine.

LABORATORY:	WBC:	6,000/ μ L
	Hct:	26
	Calcium:	12
	Bone scan:	Negative

Which of the following is the most likely diagnosis?

- A. Multiple myeloma
 - B. Metastatic prostate cancer
 - C. Prolonged corticosteroid use
 - D. Metastatic lung cancer
 - E. Avascular necrosis
-

409.

A 44-year-old woman had a biopsy of an enlarged left axillary lymph node that revealed a metastatic adenocarcinoma. Physical examination of her breasts was unremarkable, and a mammogram was normal.

Which of the following is the most likely diagnosis?

- A. Breast cancer
 - B. Lung cancer
 - C. Gastric carcinoma
 - D. Colon carcinoma
-

410.

Six months ago a 40-year-old male presented with gynecomastia that had developed during the preceding 2 months. A chest x-ray revealed a right upper lobe lung mass, and he underwent a biopsy and subsequent lobectomy, which revealed a large cell, poorly differentiated carcinoma. He now presents with recurrent multiple pulmonary masses and complains of an enlarged testis.

Which of the following is his most likely original diagnosis?

- A. Large cell carcinoma of the lung
 - B. Metastatic germ cell tumor of the testis
 - C. Anaplastic large cell lymphoma
 - D. Anaplastic colon carcinoma
-

411.

Which of the following drugs is not associated with peripheral neuropathy?

- A. Paclitaxel (Taxol[®])
 - B. Cisplatin
 - C. Vincristine
 - D. Vinorelbine (Navelbine[®])
 - E. Doxorubicin (Adriamycin[®], Rubex[®])
-

412.**Which of the following is most commonly associated with SIADH?**

- A. Squamous cell carcinoma of the lung
 - B. Ovarian epithelial carcinoma
 - C. Non-seminoma germ cell tumor of testis
 - D. Small cell lung cancer
-

413.**Which of the following shows reduced risk with the use of oral contraceptives?**

- A. Ovarian cancer
 - B. Colon cancer
 - C. Breast cancer
 - D. Head and neck cancer
-

414.

A 30-year-old male patient who is an active smoker presents with a cough and shortness of breath for the past 2 months. Three months ago, he was in his usual state of health and even participated in a half-marathon. A month later, he noticed that his face was redder than usual and his left eye was swollen. The swelling worsened, and soon he began experiencing shortness of breath. On exam, you note facial plethora, left arm swelling, and prominent veins on the left side of the chest. A chest x-ray showed a widened mediastinum. An urgent chest CT scan is done, which shows a large mediastinal and hilar mass obstructing the SVC. The biopsy of the mass is consistent with mixed germ cell tumor.

What is the next best therapeutic measure?

- A. Urgent cardiothoracic surgery consult for removal of the tumor.
 - B. Urgent vascular surgery consult for stenting the SVC.
 - C. Urgent medical oncology consult for chemotherapy.
 - D. Start intravenous steroids.
 - E. Urgent radiation oncology consultation for radiotherapy.
-

415.

A 64-year-old male who has been receiving adjuvant chemotherapy for non-small cell lung cancer (squamous histology) stage IIIA s/p resection of his lung tumor, presents to you for fatigue. He has been having progressive shortness of breath with exertion for the past 4 or 5 days. His vitals are stable, and he is afebrile. You order a CBC. The WBC count is 2 with ANC of 38%, and hemoglobin is 7.5 with MCV of 95; retic count is 1%. Prior to his 2nd cycle of adjuvant chemotherapy, which was completed 2 weeks ago, his hemoglobin had been 13 with MCV of 85.

Weight: 60 kg

What is the next best step in management of his symptoms of fatigue?

- A. Filgrastim or G-CSF 480 mg subcutaneously for 5 days
 - B. Darbepoetin 100 mg subcutaneously now and every week for the duration of his chemotherapy
 - C. Iron therapy
 - D. Blood transfusion
 - E. Admission for neutropenia and infectious disease workup, including blood cultures
-

416.

You are the hospitalist physician admitting overnight in a large medical center and have just received a call from the on-call oncologist. A patient with diffuse large B-cell lymphoma, who is stage IV with very bulky disease and has just finished outpatient chemotherapy with R-CHOP (rituximab, cyclophosphamide, hydroxydaunorubicin, vincristine [Oncovin[®]], and prednisone), is being admitted for acute renal failure. The oncologist asks you to evaluate the patient for tumor lysis syndrome and to draw the necessary lab tests.

Which combination of lab test results is most consistent with tumor lysis syndrome?

- A. High potassium (K), high phosphorus (P), low calcium (Ca), and high uric acid (UA)
 - B. Low potassium (K), low phosphorus (P), high calcium (Ca), and high uric acid (UA)
 - C. Low potassium (K), low phosphorus (P), low calcium (Ca), and high uric acid (UA)
 - D. Low potassium (K), low phosphorus (P), high calcium (Ca), and low uric acid (UA)
-

417.

A 54-year-old female comes to you requesting recommendations for breast cancer screening. In her 20s, she had been diagnosed with Hodgkin disease for which she had been treated with chemotherapy and radiation, including chest radiation. She has no family history of cancer, specifically breast cancer.

What is the best imaging modality for screening?

- A. A screening mammogram.
 - B. A screening breast MRI now.
 - C. Bilateral breast ultrasound.
 - D. No screening is recommended.
-

418.

A 75-year-old male with metastatic, hormone-sensitive prostate cancer, who is currently on androgen deprivation therapy and zoledronic acid for bone metastasis, comes to you for pain after a dental extraction over 8 weeks ago. His PSA has been stable and undetectable for 2 years (since the diagnosis of his tumor), and he has been receiving zoledronic acid for the past 16 months with no bone fractures. He is well appearing, and you start with examination of his oral cavity due to his recent extraction, as he complained of mild pain post procedure. On oral examination, you note there is some exposed bone in his right lower molar area.

What is the next best step in management of this lesion?

- A. Treat the patient with ibuprofen and analgesic mouth rinses.
 - B. X-ray the mandible for bony metastasis due to prostate cancer.
 - C. Check the PSA; if it is rising, consult radiation therapy for jaw irradiation.
 - D. Hold zoledronic acid and refer the patient back to oral surgery.
-

NEUROLOGY

419.

A 22-year-old woman presents for evaluation of headaches. She has had headaches for the past 6 months, occurring 4–5 times a month. The headaches are of great intensity, involving the right side of her head with the maximum intensity of pain occurring behind her right eye. Symptoms worsen with exertion. Headaches last 3–6 hours, are sometimes associated with nausea, and on 2 occasions have been preceded by a scotoma in the right eye. Neurologic exam is unremarkable.

Which of the following tests would you recommend next?

- A. CT scan without contrast
 - B. CT scan with contrast
 - C. MRI
 - D. MRA
 - E. No imaging
-

420.

A 56-year-old male presents for routine clinic visit with complaints of dizziness. He states the episodes are particularly common at night when he rolls over in bed. They last for 15–30 seconds and then resolve. The sensation is that of the room spinning around him.

Appropriate diagnostic workup would include which of the following?

- A. Nylen-Bárány maneuver
 - B. Audiogram
 - C. Electronystagmography
 - D. Weber test
 - E. MRI
-

421.

A 50-year-old man is brought to the emergency department by his wife. About 2 hours ago, he reported a sudden, severe headache. She went to get him Tylenol, and when she returned, he was lying on the couch and was difficult to arouse. He quickly awakened, but was confused. He seemed to drift off to sleep. When she returned a little later to check on him, he was unable to be aroused, at which point she called 911. There have been no recent illnesses. He is on no medications.

PHYSICAL EXAMINATION: His general exam is negative. He has a temperature of 100.2° F. He is unable to be aroused, but withdraws extremities to painful stimuli. Brainstem reflexes are intact. He has meningismus. There are no obvious focal neurological deficits, but your exam is limited.

Which of the following is the most likely diagnosis?

- A. Subarachnoid hemorrhage
 - B. Intracranial tumor
 - C. Large MCA infarct
 - D. Herpes encephalitis
 - E. Bacterial abscess
-

422.

A 46-year-old man develops a severe headache this morning while working at his car dealership. He also has nausea and has had 1 episode of emesis. He has shoulder and neck stiffness that developed today. He denies any history of migraine headaches or any similar headaches.

Which of the following diagnostic tests should be ordered next?

- A. CT scan without contrast
 - B. MRI scan
 - C. CT scan with contrast
 - D. Lumbar puncture
-

423.

A 31-year-old female presents with numbness in her left arm and some left leg weakness. She had an episode similar to this 9 months ago, which resolved spontaneously. Exam shows subjective difference in light touch and slight motor weakness in the left leg.

Which of the following tests would you order?

- A. CT without contrast
 - B. Head CT with contrast
 - C. MRI of spinal cord
 - D. Head MRI
 - E. Nerve conduction studies of left arm
-

424.

A 27-year-old male with history of IDDM and seizure disorder presents with a 3-week history of fatigue, low-grade fevers, and diffuse lymphadenopathy.

Exam is remarkable for diffuse lymphadenopathy (cervical, axilla, inguinal; nodes 2–3 cm in each area), tender liver, and fever of 101° F.

MEDS: Phenobarbital, phenytoin, cisapride, and nortriptyline.

LABS: WBC 9.9, Hct 38, SGOT 90, SGPT 78, BUN 20, Cr 1.1, Glu 236, RPR negative.

Which of the following diagnoses is most likely?

- A. Hodgkin disease
 - B. Syphilis
 - C. Hepatitis B
 - D. Tularemia
 - E. Reaction to phenytoin
-

425.

An 80-year-old man presents to the emergency department following a seizure. He has a history of hypertension and chronic neck pain.

MEDICATIONS: Amitriptyline, hydrochlorothiazide, tramadol, benazepril, and stool softeners

His exam is unremarkable except for post-ictal confusion.

LABORATORY: BUN 20, Cr 1.2, Na 140, K 4.2, Ca 9.8

Head CT with contrast: No abnormalities.

Which of the following would you recommend next?

- A. Obtain lumbar puncture.
 - B. Obtain MRI.
 - C. Stop tramadol.
 - D. Begin phenytoin.
 - E. Stop amitriptyline.
-

426.

A 36-year-old obese woman presents for evaluation of headaches. She has had increasing problems with headaches over the past 6 months. She has had no visual symptoms. She has occasional nausea but no focal neurologic symptoms.

PHYSICAL EXAM: BP 120/70, P 80, skin—without lesions, fundi—normal examination, neurologic exam—without abnormalities

MEDICATIONS: CaCO_3 , oral contraceptive pills, fluoxetine

Which of the following is the most likely etiology for her headache?

- A. Glioblastoma
 - B. Pseudotumor cerebri
 - C. Tuberous sclerosis
 - D. Prader-Willi syndrome
 - E. Oral contraceptive pills
-

427.

An 80-year-old man with HTN, BPH, and CAD develops herpes zoster involving the trigeminal nerve. After the lesions heal he still has severe pain involving his right eye and right side of his forehead.

Which of the following treatments would you recommend next?

- A. Hydrocodone/oxycodone
 - B. Phenytoin
 - C. Gabapentin
 - D. Amitriptyline
 - E. Nortriptyline
-

428.

An 83-year-old woman comes to the clinic with concerns about worsening dizziness. She has had an increase in disequilibrium recently, including a recent fall. She has no history of CAD or seizure disorder. Her symptoms begin when she stands up and starts to walk. They are improved when she stops for a minute and touches the wall.

MEDICATIONS: Sertraline, nizatidine, CaCO_3 , and estrogen

Which of the following is the most likely diagnosis?

- A. Benign positional vertigo
 - B. Vestibular neuronitis
 - C. Orthostatic hypotension
 - D. Multiple sensory deficits
 - E. Panic attacks
-

429.

A 45-year-old male patient of yours calls you on a Sunday afternoon. He has been having nausea, vomiting, and diarrhea today. He also has had a headache and mild dyspnea. These symptoms actually improved when he was shoveling snow earlier in the day but have now returned. He reports his wife is sick in bed with the same “flu-like” symptoms.

Which of the following do you recommend next?

- A. Have the patient call 911 for emergency evaluation/transport to the emergency department.
 - B. Have the patient see you in the clinic tomorrow if the symptoms persist.
 - C. You will make a house call today.
 - D. Prescribe amantadine 100 mg bid x 7d for both the patient and his wife.
-

430.

A 26-year-old man is found unconscious and unresponsive in his well-ventilated apartment. No medical history is available. Fifteen minutes later, when he arrives in the emergency department, he has improved.

PHYSICAL EXAMINATION: His general exam is negative. There is no evidence of trauma. His vital signs are normal. He is afebrile. There are no signs of meningeal irritation. He does not answer questions or follow commands well. Cranial nerves are normal. Formal strength testing is difficult, but he moves both arms and legs equally well. He withdraws all 4 limbs to painful stimuli. There is no decerebrate or decorticate posturing. Reflexes are 2+ and symmetric. Toes are downgoing bilaterally.

LABS: Normal routine tests

Which of the following is the most likely cause for his diminished mental state?

- A. Drug intoxication
 - B. Seizure (post-ictal)
 - C. Stroke
 - D. Encephalitis
 - E. Hyperglycemia (diabetes)
-

431.

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LABS: Normal routine tests

Which of the following is the best test to perform in the emergency department to narrow the differential?

- A. Lumbar puncture
 - B. CT scan of the brain
 - C. Toxicology
 - D. Skull x-ray
 - E. Arterial blood gas
-

432.

A 25-year-old man comes to your office complaining of an excruciating unilateral headache for the past week. He says, "It's like an ice-pick behind my eye." You discover that it occurs 8 times per day, and that each headache lasts 30 minutes. The headache is associated with eye watering on the same side. He had headaches like this 1 year ago. They lasted 6 weeks before resolving spontaneously. His dad gets the same kind of headache.

PHYSICAL EXAMINATION: His general and neurologic exams are normal.

Which of the following is the most likely diagnosis?

- A. Migraine headache
 - B. Tension headache
 - C. Cluster headache
 - D. Subarachnoid hemorrhage
 - E. Pseudotumor cerebri
-

433.

A 43-year-old woman is brought to the emergency department by her husband. She had a right middle cranial fossa meningioma removed less than 2 weeks ago. She went home on postoperative day number 5. Four days ago, the staples were removed in the neurosurgeon's office. Ever since the surgery, she has had headaches. She was given acetaminophen with codeine, which initially helped. However, the headaches have worsened over the past 3 days. In addition, she has had a low-grade fever to 100.5° F.

PHYSICAL EXAMINATION: The surgical wound looks clean (no drainage, fluctuance, or excessive redness). Chest is clear to auscultation. The patient appears slightly sleepy. She does not have signs of meningeal irritation. Cranial nerves are normal. Speech and language are normal. There is mild weakness (4/5) in the left arm. There is a left pronator drift. Reflexes are mildly increased in the left arm. Sensation and coordination appear intact.

Which of the following is the most likely diagnosis?

- A. Hemorrhagic infarct
 - B. Abscess
 - C. Viral encephalitis
 - D. Opiate intoxication
 - E. Ischemic infarct
-

434.

A 33-year-old woman is referred for episodic dizziness. When you see her, she reports a spinning sensation that is accompanied by nausea, and less often, vomiting. The dizziness is episodic, usually lasting 45 minutes. It first started 4 years ago. She reports ringing in the left ear and has more recently noticed hearing loss in the same ear (left) that is unassociated with the attacks of dizziness. There have been no recent illnesses, fever, chills, or focal neurologic deficits.

PHYSICAL EXAMINATION: The patient's general exam is negative. Neurological exam reveals mild hearing loss to the tuning fork, but is otherwise unremarkable.

Which of the following is the most likely diagnosis?

- A. Vestibular neuronitis
- B. Benign positional vertigo
- C. Labyrinthitis
- D. Ménière disease
- E. Stroke

435.

A 76-year-old man with a history of hypertension and CABG surgery 5 years ago is brought to the emergency department with a sudden onset of dizziness and clumsiness. He feels mildly nauseated, but has had no vomiting. He has been in relative good health recently. He denies malaise, fever, and chills.

PHYSICAL EXAMINATION: His general exam is normal. His vital signs show an elevated BP of 170/90. Neurological exam shows direction-changing nystagmus, and ataxia of both the left arm and leg. Otherwise, his exam is normal.

Which of the following is the most likely diagnosis?

- A. Cerebellar infarct
 - B. Ménière's
 - C. Labyrinthitis
 - D. Vestibular neuronitis
 - E. Benign positional vertigo
-

436.

A 34-year-old woman is referred to your office because of weakness. The problem has been gradually worsening for 10 days. She has no pain, denies trauma, and has had no recent illnesses or fever. She has no other medical illnesses. In college, she said that she had transient blurriness in one eye. This lasted "a few days," and she cannot recall which side was involved. She did not see a physician for the visual symptoms because they resolved spontaneously.

PHYSICAL EXAMINATION: She has a pale, mildly atrophied optic disc on the right. She has 4/5 strength in the left upper and lower extremity, brisk reflexes in the left arm and leg, and an upgoing toe on the left. Tone is normal. Strength and reflexes on the right are normal. Testing of sensation is normal. Coordination is remarkable for slowed rapid alternating movements in the left upper extremity. Her gait is slow.

Which of the following is the most likely diagnosis?

- A. Guillain-Barré syndrome
 - B. Multiple sclerosis
 - C. Transverse myelitis
 - D. Cauda Equina syndrome
 - E. Stroke
-

437.

A 65-year-old man comes to the office with his wife because, as she says, “he is moving so slow. I know we’re not getting any younger, but he is really having troubles.” Upon interviewing him, you discover that his voice has become softer, and he has had a tremor in the right hand. He has trouble turning over in bed, getting out of chairs without assistance, and has frequently “felt stuck” when trying to ambulate. His memory and thinking are normal. He is on no medications.

PHYSICAL EXAMINATION: His general exam is normal. Mental status exam is normal. His cranial nerves are remarkable for masked facies and hypophonic speech. He has increased tone (rigidity) on the right arm and leg, cogwheeling, and a resting tremor on the right. His gait is slow and festinating. He has a stooped posture. When walking, he turns “en bloc.”

Which of the following is the most likely diagnosis?

- A. Shy-Drager
 - B. Parkinson disease
 - C. Striatonigral degeneration
 - D. Progressive supranuclear palsy (PSP)
 - E. Alzheimer’s
-

438.

A 33-year-old woman sees her internist because of intermittent diplopia, and a feeling of overall fatigue for the last month. The double vision occurs mainly at night, usually while watching television. She denies associated symptoms such as dysphagia, dysarthria, weakness, or numbness. Prior to this, she was in excellent health. She has no other medical illness. There is a family history of hypertension. Her grandmother had a stroke at age 80. She is on prenatal multivitamins and is trying to become pregnant. She denies tobacco, alcohol, and drug use.

PHYSICAL EXAMINATION: Vital signs are normal. General exam is negative. Neurologic exam reveals an alert, articulate woman. Her speech is without errors. Cranial nerve exam is remarkable for a mild left-sided ptosis. When asked to sustain upward gaze for 2 minutes, she complains of double vision. When she complains of the diplopia, a mild left 6th nerve weakness is evident. The remainder of her cranial nerves exam is normal. Motor, sensory, and coordination are normal.

LABORATORY: Normal.

Of the following tests, which would you perform first to confirm the diagnosis?

- A. EMG
 - B. CT of the chest
 - C. MRI of the brain and brainstem
 - D. Anticholinesterase antibodies
 - E. Tensilon[®] test (if available); if not available, then acetylcholine receptor antibodies (AChR-Ab)
-

439.

A 25-year-old man comes to your office complaining of an excruciating unilateral headache for the past week. He says, "It's like an ice-pick behind my eye." You discover that it occurs 8 times per day, and that each headache lasts 30 minutes. The headache is associated with eye watering on the same side. He had headaches like this 1 year ago. They lasted 6 weeks before resolving spontaneously. His dad gets the same kind of headache.

PHYSICAL EXAMINATION: His general and neurologic exams are normal.

Which of the following treatments is the most effective at aborting his symptoms?

- A. Prednisone
 - B. Verapamil
 - C. Oxygen
 - D. Valproic acid
 - E. NSAIDs
-

RHEUMATOLOGY

440.

A 33-year-old Caucasian female presents with diffuse arthralgias in an outpatient clinic. She reports joint swelling, stiffness, and fatigue. Symptoms have been ongoing since childhood. She has seen specialists in the past without a diagnosis. She self-medicates with ibuprofen daily with partial relief. The pain does not wake her up from sleep. On physical exam, she has velvety skin. She can hyperextend her fingers, elbows, and knees. Despite having back pain, she has full ROM of her lumbar spine and can touch the floor with the palms of her hands and do the splits easily. She had 2 tender points on exam. There is no joint swelling.

What is her likely diagnosis?

- A. Rheumatoid arthritis
 - B. Seronegative spondyloarthritis
 - C. Fibromyalgia
 - D. Joint hypermobility syndrome
 - E. Osteoarthritis
-

441.

Which of the following drugs would you avoid prescribing if a patient is currently on methotrexate?

- A. Cephalexin
 - B. Azithromycin
 - C. Trimethoprim/sulfamethoxazole (TMP/SMX)
 - D. Levafloxacin
 - E. Ciprofloxacin
-

442.

A 48-year-old man from Thailand comes to see you for an office visit. He states that he has recurrent gout attacks and tophi. He has never been treated and takes no meds. He denies any other medical problems. Musculoskeletal exam reveals oligoarticular tophi in an asymmetric pattern at the distal and proximal interphalangeal joints without any joint synovitis.

LABS:	WBC	10,000
	Hgb	14.0 g/dL
	BUN	10 mg/dL
	Creatinine	0.9 mg/dL
	Glucose	90 mg/dL
	CO ₂	20 mmol/L
	Serum chloride	111 mmol/L
	Serum potassium	4.0 mEq/L
	Serum sodium	138 mEq/L
	Uric acid	9.8 mg/dL

Tophus aspirate confirms monosodium urate crystals.
You want to initiate allopurinol.

Which would you consider doing to reduce the risk for severe allopurinol sensitivity in this patient?

- A. Initiate allopurinol no higher than 150 mg/day.
 - B. Start prophylaxis with an antihistamine when initiating allopurinol.
 - C. Get an HLA-B*51 gene marker.
 - D. Get an HLA-B*5801 gene marker.
 - E. Get an HLA-B*27 gene marker.
-

443.

A 42-year-old machinist presents to the clinic with a history of 6 weeks of nagging mid-abdominal pain. He has not been previously ill. You discover that his peripheral eosinophil count is 4% and that his urine sediment is “telescopic” with red cells, white cells, and granular casts. Visceral angiography suggests the correct diagnosis, which is confirmed by biopsy that demonstrates involvement of medium-sized vessels showing the characteristic ring of acellular azurophilic fibrinoid necrosis. All tests for anti-neutrophil cytoplasmic antibody (ANCA) markers are negative, as is a hepatitis screen.

Which of the following is the most likely diagnosis?

- A. Classic polyarteritis nodosa (PAN)
 - B. Microscopic polyarteritis (MPA)
 - C. Churg-Strauss syndrome
 - D. Granulomatosis with polyangiitis (Wegener’s)
 - E. Kawasaki disease
-

444.

A 23-year-old male presents to the emergency department with a 2-day history of severe joint pain and swelling. He has had daily fever spikes up to 101° F for the last 8 weeks. Oftentimes these fever spikes are accompanied by a salmon-colored rash that is nonpruritic. He denies photosensitivity, penile discharge, diarrhea, or mouth ulcers. He has had no sick contacts and denies any history of viral illness or sexually transmitted diseases in the last 6 months.

ON EXAMINATION:

Temp = 102.3° F
Neck = normal Abdomen = soft
Joint exam reveals synovitis of MCPs bilaterally, right elbow synovitis, and effusion of the right knee. He was also noted to have a salmon-colored rash over his trunk and abdomen.
WBC = 16.7 Hb = 11.3 ESR = 123
Urinalysis = neg. ANA = 1/80, diffuse
Rheumatoid factor = neg.

Which of the following is the most likely diagnosis?

- A. Whipple disease
 - B. Systemic lupus erythematosus
 - C. Reactive arthritis
 - D. Adult-onset Still's disease
 - E. Gonococcal arthritis
-

445.

A 64-year-old woman presents to her internist with swelling of her neck. She has had 5 years of dryness in her eyes and mouth. She has had pain in her knuckles. She is presently on celecoxib and hydroxychloroquine. Her hypertension is controlled with a thiazide.

PHYSICAL EXAMINATION: Heberden nodes in both hands.
Mild MCP synovitis is noted bilaterally.
Significant caries are noted.
Crackles are noted at both bases.
Several rubbery 2 x 2-cm lymph nodes are noted in her left cervical chain.

White cell count = 2.9 ESR = 83
ANA = 1/1280 RF = neg. Uric acid = 4.9
Anti-SSA antibody = 1/32

Which of the following is the most likely diagnosis?

- A. Sjögren syndrome with non-Hodgkin lymphoma
 - B. Pulmonary fibrosis
 - C. Myelodysplastic syndrome
 - D. AIDS with tuberculosis
 - E. SLE with reactive lymphoid hyperplasia
-

446.

A 47-year-old woman presents with an acute painful ulcer on her left index finger. She has had classic triphasic color changes in her fingers for the past 18 months, precipitated by cold weather. She has noticed a 10-pound weight loss recently and is struggling to swallow solids. She has a 20-pack/year smoking history and has diet-controlled Type 2 diabetes mellitus.

Physical examination: BP = 137/87
Positive nailfold capillaroscopy with infarct at tip of index finger. Sclerodactyly noted. Multiple telangiectasias. All pulses intact. No bruits. Lung fields clear.

Which of the following is not likely to be found?

- A. ANA
- B. Anti-SCL70 antibody
- C. Anti-histone antibody
- D. Anti-centromere antibody
- E. Rheumatoid factor

447.

A 75-year-old woman presents to her geriatrician with pain in her shoulders and on the sides of her hips. She is being treated for a peripheral neuropathy with vitamin B₁₂. She had a mastectomy 12 years ago, followed by chemotherapy, and has been told recently by her oncologist that she is disease-free.

Examination reveals no evidence of synovitis, with excellent range of joint motion. No clear-cut proximal weakness. No tender points. No heliotrope and no rash. Normal fundoscopic examination.

Hb = 9.7 WBC = 4.9 ESR = 88
Calcium = 9.9
Chest x-ray normal
Urinalysis negative

Which of the following should she be treated with?

- A. Folic acid 1 mg
 - B. Gabapentin
 - C. Tricyclic antidepressant
 - D. Prednisone 60 mg/day
 - E. Prednisone 15 mg/day
-

448.

A 50-year-old diabetic female presents with left shoulder pain and stiffness, which has been progressive over the past several weeks. The pain wakes her up at night. She had a pacemaker placed 3 months ago, having suffered an anterior myocardial infarction 6 months ago.

EXAMINATION: BP = 137/87 Pulse = 76
Musculoskeletal exam reveals limited ROM of the left shoulder with abduction to 90 degrees, flexion to 100 degrees, and minimal extension. The right shoulder has full ROM. Mild lower-extremity sensory deficit. Mild sclerodactyl of the hands are noted. There is no swelling of the joints.

Which of the following would be an appropriate treatment?

- A. Prednisone 15 mg
 - B. Physical therapy
 - C. Left subacromial corticosteroid injection
 - D. Non-steroidals
-

449.

A 29-year-old psoriatic patient has noticed an increased stiffness of his lower back. He has a history of iritis. His psoriasis is controlled with local creams alone. His left knee was swollen 6 months ago but resolved spontaneously.

Musculoskeletal exam reveals normal chest excursion, full ROM on flexion and extension of the spine, and tenderness at the sacroiliac joints. There is no peripheral soft tissue swelling of the joints.

Which of the following is the next most appropriate investigation?

- A. Chest x-ray
 - B. HLA-B27
 - C. CT scan of SI joints
 - D. Slit-lamp investigation
 - E. Lumbar MRI
-

450.

A 47-year-old laborer is complaining of numbness and tingling of his right hand, which wakes him up at night. He is on glyburide for his diabetes. He has a history of apparent gout and has taken colchicine intermittently. He injured his left knee in a motor vehicle accident several years ago and has mild pain.

Examination reveals no wasting of the right thenar eminence. Sensory deficit is noted of the thumb and index finger. Tinel's sign is positive. Crepitus of the right knee is present, but there is no swelling.

Nerve conduction velocities reveal slowing across the carpal tunnel of the median nerve.

Which of the following would not be appropriate?

- A. Vitamin B₆
 - B. Right wrist splint
 - C. Right carpal tunnel corticosteroid injection
 - D. Carpal tunnel release
-

451.

A 50-year-old male has a lengthy history of sinusitis. He has developed hemoptysis over the last week and feels a little short of breath. His energy levels have declined, and he has noticed increased night sweats. He has had increased hand, elbow, and knee pain over the last week.

Physical examination reveals a cachectic male, blood pressure = 132/94. Crackles at both bases are noted. No synovitis. Erythematous papules in the lower extremities are present. Foot drop is present on left.

Hb = 10.1 White cell count = 7.6

Creatinine = 1.7

Urine reveals trace protein with red cells and red-cell casts. C-ANCA = positive

Later that same day, creatinine = 2.6

Renal biopsy is likely to show which of the following?

- A. Minimal change nephritis
- B. Rapidly progressive glomerulonephritis with crescents
- C. Membranous nephropathy
- D. Focal sclerosis
- E. Interstitial nephritis

452.

A 47-year-old woman has had severe erosive, nodular, seropositive rheumatoid arthritis for 7 years. She has responded well to a combination of infliximab, methotrexate, and low-dose prednisone.

She presents to the emergency department with a 2-day history of hemoptysis, fevers, and night sweats. Physical examination reveals mild synovitis of MCP's bilaterally and left knee effusion. Nodules are noted at her elbows and hands but no vasculitis. She has diminished breath sounds at the right apex. Abdomen is soft and without masses.

LABORATORY:	ESR:	66
	Hb:	9.7
	Chest x-ray:	Cavity at the right apex revealed

Which of the following investigations would be the most appropriate?

- A. ACE levels
 - B. Rheumatoid factor
 - C. Bronchoscopy
 - D. High-resolution CT scan of the chest
 - E. Sputum for AFB
-

453.

A 31-year-old physician's assistant is seen for worsening Raynaud's. She has had classic triphasic color changes in her fingers for the past 10 years. She has never had ulcers on her fingers. She has also had a history of gastroesophageal reflux. The only other medical history of note is that she was diagnosed with anorexia nervosa 10 years ago but feels that she is now currently "healed." No joint pain and no rashes of note. No problems swallowing food.

Examination reveals a healthy 5' 2" female whose weight is 104 lbs. She is well nourished and well hydrated. Skin is normal without sclerodactyly, telangiectasia, or pulp atrophy. However, 2 of the digits on her right hand reveal an abnormal vital nailfold capillaroscopy with dilated capillaries. The remainder of her exam is benign.

Which of the following serologies is not compatible with a diagnosis of primary Raynaud's?

- A. Positive anti-centromere antibodies
 - B. Anti-nuclear antibody
 - C. Rheumatoid factor
 - D. Normal ESR
-

454.

A 47-year-old woman with a 5-year history of reflux and an 18-month history of Raynaud's is seen by her primary care physician with a history of worsening of her reflux and of solids occasionally getting "stuck in her throat." She particularly has problems swallowing pills and more recently has had to cut her food up into much finer pieces in order to get it down, and is using more liquids to do so. She has no joint pain but is concerned that she is losing grip in her fingers. She is unable to crochet the way that she would like to because of loss of dexterity. She is not short of breath. She has had no other major problems. She denies any joint pain. She is taking a proton pump inhibitor twice daily.

She is well-nourished. Her blood pressure is 137/73 and pulse is 76. Cardiac exam is benign. Respiratory tract is without crackles. Her joints are normal. Cutaneous exam reveals mild sclerodactyly with positive vital nailfold capillaroscopy. She has some telangiectasias on her chest.

Lab workup reveals hemoglobin of 11.7, WBC of 4.9, and normal platelet count. Creatinine is 0.9. ANA is positive, and anti-centromere antibodies were strongly positive. U/A is clear.

Which of the following investigations would be appropriate as part of her long-term follow-up?

- A. Small bowel follow-through
- B. Constant monitoring of ANAs
- C. Occasional ECHO to estimate pulmonary pressure
- D. Serum protein electrophoresis

455.

A 53-year-old African-American gentleman presents with profound weakness and minimal muscle pain. These symptoms began 2–3 weeks ago. Initially, he could no longer weight-train in the way he was accustomed. He is not short of breath or coughing. He denies any rashes or joint pain. His energy levels have been dramatically reduced. He is having no problems with swallowing.

On examination, he is quite weak proximally. He is barely able to rise from a seated position. Proximal muscles in the upper extremities are similarly weakened, but distal muscle strength is normal, and there are no sensory deficits detected. Vital signs are normal. The joints have a good range of motion and are without active synovitis. Cutaneous exam is positive both for a peri-orbital heliotrope rash and Gottron plaques on the extremities. The remainder of his examination is normal.

Lab findings reveal hemoglobin of 11.3, WBC of 12.1, and normal platelet count. Creatinine is normal. Creatinine kinase is 19,512. A muscle biopsy reveals fairly non-specific lymphocytic and neutrophil infiltrates of some of the muscle fibers, with occasional areas of necrosis.

Which of the following therapies would not be appropriate now?

- A. IV immunoglobulin
- B. 60 mg of prednisone
- C. Alendronate 70 mg q week
- D. 1,000 mg of elemental calcium per day in divided doses

456.

A 59-year-old female presents to her primary care physician with a history of “finger problems.” More specifically, her right index and left ring fingers have been “locking” and “triggering” for the past several months. She is beginning to lose function and is finding this most irritating. She is otherwise in excellent health. She has no joint pain particularly. About 18 months ago, she had a painful shoulder. She was seen by her local orthopedist and sent for a course of physical therapy, with fairly dramatic improvement of her shoulder pain and stiffness. Her diabetes is controlled on diet alone. A recent glycosylated hemoglobin (HbA1c) was normal. Past surgical history is positive for a hysterectomy and right carpal tunnel release 6 months ago. She has no other major symptoms of note at this time.

Her physical examination reveals her to be a well-appearing, slightly obese female in no distress. Her blood pressure is 143/76 and pulse is 78. Cardiac and respiratory exam is benign. Musculoskeletal exam reveals evidence of asymmetric Heberden nodes. She has no active synovitis of the PIPs or MCPs. The wrists and elbows have a good range of motion. Shoulder abduction is full and normal. Lower extremity joints are normal. Her hands reveal evidence of sclerodactyly and slightly diminished grip strength. There is a positive prayer's sign. There is evidence of early Dupuytren contractures and slight thickening of some of her flexor tendons, including the two relevant fingers, which were not clearly demonstrated to trigger.

Which of the following is the most likely diagnosis?

- A. Rheumatoid arthritis
 - B. Progressive systemic sclerosis
 - C. Diabetic-limited joint mobility syndrome
 - D. Diabetic autonomic neuropathy
-

457.

A 20-year-old student is referred to your office from campus health care. There is a concern that she has a possible connective tissue disease process. She lives at home in Florida during the summer months but attends school in the Northeast during the winter months. Over the last month or two of severe winter weather, she has noticed that her fingers seem to be quite painful and go through some color changes that are brand new to her. Most specifically, they are initially white and then seemingly go a little blue and then remain red for prolonged periods of time. She struggles to complete her projects because she finds it very difficult to type. She thinks her finger joints are a little painful. She readily admits to some alcohol intake and has recently begun to smoke 5–10 cigarettes per day, particularly more so over the weekends. She denies any rashes, swallowing problems, shortness of breath, or cough. She has no problem swallowing food. As part of her workup on campus, she was found to have a strongly positive anti-nuclear antibody. She had been reading about lupus and was very concerned about this condition, particularly from the information that she had gleaned from the Internet.

On examination, she is alert and oriented. BP is 112/57, pulse is 76. All pulses are present and equal. She has no bruits. There is a positive Allen's test. Cardiorespiratory exam is benign. Musculoskeletal exam is benign. Cutaneous exam reveals no rashes, vasculitis, or pulp atrophy. There is a negative vital nailfold capillaroscopy.

Lab findings include a positive ANA in a titer of 1:320 (normal is less than 1:40). Hemoglobin is 11.9, and WBC is 4.9. U/A is negative.

Which of the following would be appropriate for further workup?

- A. Esophageal manometry
 - B. ECHO to estimate pulmonary pressure
 - C. Bronchoscopy
 - D. Repeat ANA, anti-dsDNA titers, anti-centromere, and anti-SCL70
 - E. Upper extremity arteriography
-

458.

A 29-year-old female is seen in the outpatient setting for painful swollen knees and feet. These symptoms began about 10 days ago. She describes the pain as incapacitating. She can barely ambulate and is brought in today in a wheelchair. She has never had any joint pain prior to this. She denies any rashes. She thinks that she had a fever about 2 weeks ago, which developed 2–3 days into a week-long trip to Mexico. Toward the end of that trip, she developed fairly significant diarrhea for about 48 hours, which was quickly self-limiting. No rectal bleeding was noted at that time. She has had no urinary symptoms.

On examination, her temperature was 97.3° F. She was not pale or jaundiced. BP was 112/72 and pulse was 100. Cardiac and respiratory exams were benign. Cutaneous exam was benign. Musculoskeletal exam revealed no upper extremity joint synovitis. However, she had very significant knee effusions, was very tender over the insertion of the right Achilles and had significant sausageing asymmetrically of a few of the lower extremity digits.

Which of the following is the proper course of action at this time?

- A. Inject both knees with corticosteroids.
 - B. Admit the patient and place her on broad-spectrum IV antibiotics.
 - C. Check baseline labs to include CBC, sed rate, RF, and aspirate one of the knees.
 - D. X-ray both knees and ankles.
 - E. Give systemic corticosteroids.
-

459.

A frustrated 76-year-old man is seen as an outpatient. He has a 20-year history of joint pain. Initially, he began with some stiffness and swelling of the left knee, which rapidly spread to his right knee. He was told that he had OA and had several unsuccessful corticosteroid injections into both knees. His orthopedist was not inclined to replace the knee joints at that time, given his age. Over the years, the knees slowly began to bother him less but certainly made ambulation uncomfortable. About 5 years ago, he began to develop right groin pain and was told that he had severe “arthritis” in the right hip area. Hip replacement was suggested and, because of ongoing limitation of mobility, this was successfully completed 2½ years ago. More recently, he has begun to experience some pain in the base of his right thumb. He has tried acetaminophen and numerous OTC NSAIDs and had been placed on nabumetone, sulindac, and diclofenac. He developed significant abdominal pain while on the nabumetone and subsequently had an endoscopy and was told that he had a small gastric ulcer. He was told not to take antiinflammatories any longer. More recently, his knees have been bothering him significantly. The rest of the history is fairly benign. He has moderate HTN and is on an ACE inhibitor.

On examination, he is alert, oriented, and well nourished. BP is 137/91 and pulse is 76. Cardiorespiratory exam is benign. Complete musculoskeletal exam reveals bilateral asymmetric Heberden nodes with some squaring of both thumbs. The elbows and shoulders have a good range of motion. Both hips have reasonable internal and external rotation, but he has fairly significant crepitus of both knees. He has fairly obvious varus deformities with some laxity of the lateral collateral ligaments on both sides. He has marked hallux valgus of the right toe. Cutaneous exam is benign.

Which of the following is not a reasonable therapeutic option?

- A. Intraarticular glucocorticoid
- B. Celecoxib
- C. NSAID + proton pump inhibitor
- D. Prednisone 10 mg qd

460.

A 19-year-old Caucasian male is seen for low back pain and stiffness. He has been very used to running and playing basketball and is now finding it increasingly difficult to compete in these activities. For the past 18 months, he has developed progressive low back pain, which he wakes up with in the morning. Somewhat surprisingly, he notices that this pain improves on his early morning run. His previous medical history has been benign, except for occasional episodes of diarrhea. He has discussed this with his primary care physician and was told that this possibly was irritable bowel syndrome, because it seemed to be made worse by stress related to exams, which he was taking during his freshman year. On one occasion, he had fairly bloody stools, which lasted about 36 hours, but he failed to report this to his primary care physician. Family history is benign—no family members with arthritis or back problems.

On examination, he is well nourished and well hydrated. The general exam is benign. His joints appear quite normal. His neck and lumbosacral movement is full and normal, and he has a negative straight leg-raising sign. Schober's test reveals 6 cm of movement. There is no evidence of psoriasis. Lab investigations revealed a sed rate of 63, hemoglobin of 10.9, WBC of 7.6, and creatinine of 0.8. U/A is negative.

Which of the following is not an appropriate investigation?

- A. MRI of the LS-spine
 - B. CT scan of the SI joints
 - C. Colonoscopy
 - D. Referral to ophthalmology for slit-lamp examination
-

461.

A 58-year-old Caucasian female presents with aching of her shoulders and the sides of her hips. This has been present for the past 3–4 weeks. She has not wanted to go to the gym, where she participates in exercise and water aerobics 3–4 times weekly. Her fingers, toes, knees, and elbows have not been painful. She has a history of HTN, which has been treated with a beta-blocker. There is no family history of joint problems.

On examination, she is well nourished and well hydrated with normal BP and pulse of 76. Exam is completely without any specific findings. Her musculoskeletal exam is entirely negative without any loss of joint range or mobility. She has no synovitis in any joints and no tender trigger points.

Lab investigations reveal a mild anemia with hemoglobin of 10.2, MCV of 88, and ESR of 99. She is placed on prednisone 15 mg qd.

Which of the following is appropriate adjunctive therapy?

- A. Calcitonin
 - B. Bisphosphonate
 - C. A selective estrogen receptor modulator (SERM)
 - D. Estrogen therapy
-

462.

A 42-year-old gentleman presents with diffuse joint pain and swelling, which has been ongoing for the past 18 months. He initially began with some knee pain and swelling and was unable to continue with his usual habit of cycling. However, the episodes of joint pain were seemingly unrelated to his cycling, and he continued to have episodes of swelling that occurred very spontaneously that would last for 10–12 days and then subside. These paroxysmal episodes then began to involve his wrists and then the 2nd and 3rd MCP joints on both sides. He was seen by his primary care physician, who found him to have a sed rate of 53 and a negative RF and ANA. X-rays of the relevant joints were thought to be negative in the early stages. He never had an episode of podagra. He has no history of renal calculi. The rest of the systemic inquiry was benign. He has no family history of joint problems. There are no problems with his eyes. He tried several NSAIDs; these were generally unsuccessful. He was even prescribed a prednisone dose-pack equivalent.

On examination, he had a BP of 112/76. General exam was benign. Musculoskeletal exam revealed some tenderness over the 2nd and 3rd MCP joints on both sides with no effusions or synovitis. His right wrist had somewhat limited flexion and extension. The knees were without effusions. Repeat lab investigations again found him to be RF-negative, and he had a normal sed rate. X-ray of the hands revealed significant osteophytes over the 2nd and 3rd MCP joints bilaterally with right wrist triangular fibrocartilage calcification on the right.

Given the fact that there were no active joints to tap, which of the following investigations would be appropriate at this stage?

- A. CT scan of the SI joints
- B. Ferritin and calcium levels
- C. Bone scan
- D. Anti-Jo-1 antibody

463.

A 40-year-old man is evaluated because of a 2-week history of fatigue. However, on further questioning, you learn that he has had dysphagia with severe generalized weakness. He notes dyspnea on exertion at 20 feet and has developed significant joint and muscle pains. Finally, with all of this, he says he developed an itchy widespread rash.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: Works as a used car salesman; married for 18 years with 2 children, ages 10 and 5

PHYSICAL EXAMINATION: VS: BP 120/70, P 100, RR 20, Temp 100.6° F
 HEENT: PERRLA, EOMI
 Throat: Slight redness noted, no exudates
 Neck: Supple
 Heart: RRR without murmurs, rubs, or gallops
 Lungs: CTA
 Abdomen: Bowel sounds are present; no hepatosplenomegaly
 Extremities: No cyanosis or clubbing
 Swelling and tenderness of the metacarpophalangeal and knee joints bilaterally
 Flat-surfaced, reddish-to-violet, scaling papules noted on the knuckles

Motor exam: Weakness of the proximal arm and leg muscles
Skin: Red papular eruption is noted on his face, chest, and back.
Scaling noted with cracking on the skin of the palmar surface of his fingers.

LABORATORY RESULTS: WBC: 15,000/ μ L; 50% polys, 40% lymphs
ESR: 50 mm/hr
AST: 170 U/L
ALT: 190 U/L
Serum aldolase: 40I U/mL (NL: 0.8-3.0)
Rheumatoid Factor: 1:40 (Normal is less than 1:80)
ANA: 1:1280 in speckled pattern

Which of the following is the most likely diagnosis?

- A. Scleroderma
 - B. Rheumatoid arthritis
 - C. Systemic lupus erythematosus (SLE)
 - D. Dermatomyositis
 - E. Chronic fatigue syndrome
-

464.

A 40-year-old medical publishing company executive presents with a 2-month history of episodic left shoulder pain after his weekly bowling match. This resolves after 1–3 days but returns following each time he bowls. He has been taking acetaminophen and ibuprofen to relieve the pain. Otherwise, he is without complaints.

PAST MEDICAL HISTORY: Negative

SOCIAL HISTORY: No sexually transmitted disease history
No alcohol or smoking
No drug use
Married with 3 kids

PHYSICAL EXAMINATION: Left shoulder: Excellent muscle bulk with no point tenderness
Passive abduction to 90° causing pain in the deltoid region
With the upper arm held at 45° of abduction, resisted active abduction, and adduction reveals normal strength without pain.
Internal and external rotation is normal without pain.

Which of the following best describes his condition?

- A. Bursitis of the subacromial bursa
 - B. Rotator cuff tear
 - C. Impingement syndrome
 - D. Osteoarthritis of the shoulder
 - E. Thoracic outlet syndrome
-

465.

A 50-year-old man swims daily in a lake. Approximately 2 years ago he injured his left foot while in the lake after stepping on some rocks. Pain and swelling developed at the site of injury, which was just proximal to the 3rd digit on his left foot. Traumatic synovitis was diagnosed, and he was started on oral ibuprofen and local corticosteroid injections. During the next 2 years, the pain and swelling have persisted, and now have spread to the plantar surface of his foot and to his ankle. He has not had any fever or chills. Three synovectomies have been performed, and each showed non-caseating granulomas. Special stains revealed no mycobacteria or fungi. Cultures have not grown anything at 2 months since the last synovectomy. He comes to you today because it is worsening again.

Which of the following organisms is most likely causing his infection?

- A. *Mycobacterium marinum*
- B. *Nocardia brasiliensis*
- C. *Mycobacterium tuberculosis*
- D. *Blastomyces dermatitidis*
- E. *Sporothrix schenckii*

466.

A 60-year-old Hispanic man comes in with recurrent episodes of palpable purpura with joint aches.

PHYSICAL EXAMINATION: Significant for scattered purpuric papules on his lower extremities bilaterally
Mild tenderness of the proximal interphalangeal joints of both hands and feet
No synovial thickening is noted.

LABORATORY:

Hemoglobin:	10.5 g/dL
WBC:	7,000/ μ L
MCV:	88
ESR:	40 mm/hr
AST:	50 U/L
Alkaline phosphatase	90 U/L
ANA:	Negative
Rheumatoid factor:	1:2080 (< 1:40 normal)
Serum cryoglobulins:	Markedly elevated
Biopsy of skin:	Leukocytoclastic vasculitis

Which of the following tests will help you confirm your diagnosis?

- A. Serum and urine immunoelectrophoresis
- B. Anti-DNA
- C. CT of chest
- D. Antineutrophil cytoplasmic antibodies
- E. Hepatitis C serology

467.

A 50-year-old woman with systemic lupus erythematosus (SLE) for 20 years comes to the clinic with a complaint of sudden onset of left hip pain without antecedent trauma. The pain is much worse when she tries to walk or move the hip. She has been on chronic steroids for most of those 20 years. Her SLE has been under fairly good control for the past 5 years.

PAST MEDICAL HISTORY: Last hospitalization was 5 years ago for lupus nephritis exacerbation
Hospitalized before that for lupus cerebritis 10 years ago

SOCIAL HISTORY: Lives with her boyfriend, a 20-year-old computer operator
Doesn't smoke or drink

FAMILY HISTORY: Mother with SLE died at age 45
Father aged 70 and healthy
Sister aged 55 with SLE

PHYSICAL EXAMINATION: VS: BP 120/70, P 100, RR 19, Temp 98.7° F
HEENT: PERRLA, EOMI
TMs Clear
Throat: Clear
Neck: Supple
Heart: RRR with II/VI systolic murmur (no change; heard in the past)
Lungs: CTA
Abdomen: Benign
Skin: No rash
Extremities: Left hip is painful with any type of movement.
Internal rotation is limited.
X-ray of left hip shows osteopenia.

Which of the following is the most likely diagnosis?

- A. Chronic osteomyelitis
- B. Avascular necrosis of the hip
- C. Acute osteomyelitis
- D. Slipped epiphyseal head of the femur
- E. Fracture of the hip

468.

A 65-year-old woman is coming in for a routine physical examination. She is concerned about postmenopausal osteoporosis. She currently performs in the circus and is worried about bone density problems when she jumps off of the trapeze.

Which of the following tests would be the best to detect and monitor osteoporosis?

- A. Dual-photon absorptiometry
 - B. Dual-energy x-ray absorptiometry
 - C. Radiography
 - D. Quantitative CT scan
 - E. Single-photon absorptiometry
-

469.

A 50-year-old woman comes in with complaints of dysphagia. She has a 4-month history of proximal muscle pain, Raynaud phenomenon, and a new rash on her hands.

PHYSICAL EXAMINATION: Skin: Periungual telangiectasia and scaling, hyperpigmented rash over the dorsum of the metacarpophalangeal joints
 Muscle strength testing: Proximal muscle weakness in upper and lower extremities
 Neurologic exam besides above is normal.
 Barium swallow is done.
 You determine she has systemic sclerosis.

Which of the following is the barium swallow going to show?

- A. Zenker diverticulum
 - B. No abnormalities on barium swallow; requires endoscopy
 - C. A mass constricting flow of barium
 - D. Loss of lower esophageal sphincter function
 - E. Poor initiation of swallowing
-

470.

A 30-year-old man has had recurrent episodes of asymmetric inflammatory oligoarticular arthritis involving his knees, ankles, and elbows. The arthritis usually lasts anywhere from 2 to 4 weeks. Since age 20 or so, he has had recurrent painful “sores” in his mouth. Today he presents to you with fever, arthritis, and mild abdominal pain. Additionally, he reports a “severe” headache.

Physical examination shows significant arthritis of his bilateral knees with warmth to touch and gross fluid accumulation. Additionally, you find a superficial thrombophlebitis in his left leg.

ANA is negative.

Which of the following is the most likely diagnosis?

- A. SLE examination shows significant arthritis of his bilateral knees.
 - B. Crohn disease examination shows significant arthritis of his bilateral knees.
 - C. Behçet syndrome examination shows significant arthritis of his bilateral knees.
 - D. Whipple disease examination shows significant arthritis of his bilateral knees.
 - E. Ulcerative colitis examination shows significant arthritis of his bilateral knees.
-

471.

A 60-year-old man presents with complaints of a swollen left big toe for 3 days. This has never happened before. He has a negative past medical history. Examination shows a large swollen left big toe. This is likely to be acute gouty arthritis.

Of the following agents, which would not be useful in the treatment of acute gouty arthritis?

- A. Oral colchicine
 - B. Indomethacin
 - C. Allopurinol
 - D. Oral steroid
 - E. Intraarticular steroids
-

472.

A 50-year-old man presents with swelling in his left knee for 3 days. The knee is painful and he cannot ambulate well. He denies history of trauma to the knee. An aspirate of the knee is done and shows crystals with weakly positive birefringence on compensated polarized light microscopy.

Based on the findings, which of the following is the most likely etiology?

- A. Rheumatoid arthritis
 - B. Gout
 - C. Infection with a crystal-producing organism
 - D. Osteoarthritis
 - E. Pseudogout
-

473.

A 28-year-old man develops swelling, pain, and tenderness in his left ankle and right knee. He had severe diarrhea after a picnic 1 month prior to the onset of his arthritis. In between his episodes of diarrhea and arthritis, he had also developed “pink eye,” which was mild and lasted only 3 days. He was treated for “gonorrhea” 2 weeks ago but continues to have some clear penile discharge. He wonders if he needs more antibiotics because “the gonorrhea has never lasted this long before.”

Which of the following is the most likely diagnosis?

- A. Reactive arthritis
 - B. Resistant gonococcal arthritis
 - C. Gout
 - D. Pseudogout
 - E. Ankylosing spondylitis
-

474.

A 45-year-old woman presents with arthritis, malar rash, Raynaud phenomenon, leukopenia, and photosensitivity. She is worried that she may have lupus.

According to current guidelines, which of the following is not a clinical manifestation used to diagnose systemic lupus erythematosus?

- A. Leukopenia
- B. Malar rash
- C. Arthritis
- D. Raynaud phenomenon
- E. Photosensitivity

475.

An 80-year-old woman with rheumatoid arthritis for 30 years presents for follow-up. She has had an extensive history and has developed many complications from her disease.

Which of the following is not a characteristic deformity associated with rheumatoid arthritis?

- A. Swan-neck deformity
- B. Heberden node
- C. Hammer toe
- D. Boutonniere deformity
- E. Ulnar deviation

476.

A 19-year-old woman presents to your clinic with leukopenia, a positive ANA, arthritis, and a rash. You review her laboratory work and notice that her urinalysis shows significant proteinuria, red cells, and red cell casts. Her creatinine is 2.0 (normal < 1.3).

Based on these findings, which antibody listed below should you test for at this time?

- A. dsDNA antibody
- B. c-ANCA
- C. RNP antibody
- D. SSA (Ro) antibody
- E. Anti-histone

477.

A 23-year-old man with low back pain for the past 6 months presents for evaluation. The pain is most intense in the morning and seems to improve with exercise. On physical examination, he is tender on palpation of the sacroiliac joints. He has reduced lumbar lordosis. There is no evidence of peripheral arthritis.

Which of the following is true?

- A. A urine sample should be sent for culture and sensitivity.
- B. He needs treatment with prednisone.
- C. X-rays of the hands should be performed.
- D. You should order a 24-hour urine for protein and creatinine.
- E. X-rays of the sacroiliac joints are indicated.

478.

A 55-year-old man presents for routine physical examination. He gives a 10-year history of intermittent episodes of severe pain and swelling of the joints, occurring about every 3 to 5 months and lasting for about 1 week. He says these episodes “are just like my pappy has.” Between the attacks, he has virtually no joint pain. His last attack was about 2 months ago, and he is without symptoms when he sees you today.

PAST MEDICAL HISTORY: Essentially negative

FAMILY HISTORY: His father is 70 years old with similar joint complaints

SOCIAL HISTORY: Lives alone with his 2 cats
Doesn't smoke
Drinks a 6-pack of beer daily

PHYSICAL EXAMINATION: Extremities: Hallux valgus (bunion) deformity of both
1st metatarsophalangeal joints
Firm, enlargement of the right 2nd and 4th proximal
interphalangeal joints and the left 1st and 5th proximal
interphalangeal joints
Several hard nodules are palpated in the left olecranon
bursa, which is swollen but not tender, not warm, and
not erythematous.

An x-ray of the right foot shows soft tissue density around the 1st metatarsophalangeal joint and an oval bone erosion with an overhanging edge in the 1st metatarsal bone at the metatarsophalangeal joint.

Which of the following is the most likely cause of his complaints?

- A. Tendinosis universalis
- B. Osteoarthritis
- C. Gout
- D. Pseudogout
- E. Rheumatoid arthritis

479.

A 42-year-old Caucasian woman presents to your office with the chief complaint “I may have osteoporosis. Can you test me?” On further questioning, you learn that she is a very active woman and works out at a gym 3 times a week doing strength training as well as aerobic exercise. She has never smoked and rarely drinks alcohol. She is still having menses.

Physical examination is unremarkable. She is 5' 10" and weighs 140 lbs.

Based on your findings, which of the following is the best thing to do concerning her “osteoporosis”?

- A. Tell her that her case requires referral to a specialist.
 - B. Tell her that her risk of osteoporosis is very low, and no testing is required at this time.
 - C. Tell her that she is at risk for osteoporosis, and you will send her to get a DXA scan to assess bone mineral density.
 - D. Tell her you are worried that she may have a systemic disease, and you order lumbar spine films, CBC, thyroid function tests, and urinalysis.
 - E. Start her on estrogen/progesterone.
-

480.

A 55-year-old Caucasian male works as a construction worker. He has a long history of tobacco use and presents to you with a complaint of low back pain that started about 3 weeks ago. He was referred to you by a pulmonologist in your practice. He has a history of asthma. He cannot remember what his medications are except for sildenafil. You suspect he may have osteoporosis even though he is a male.

Which of the following medications could he be taking that would put him at risk for osteoporosis?

- A. Chronic oral steroid use
 - B. ACE inhibitors
 - C. Ranitidine
 - D. Warfarin
 - E. Sildenafil
-

481.

A 30-year-old woman with carpal tunnel syndrome comes to you after having been treated by another physician in town with nonsteroidal antiinflammatories for the past few months without much improvement. She has also been using “splints” regularly without much improvement. She has no loss of motor function. EMG and nerve conduction studies are consistent with delayed conduction in the distribution of the median nerve.

Before sending her to surgery, which one of the following should you try?

- A. Treatment with a tricyclic antidepressant at bedtime.
 - B. Corticosteroid phonophoresis into the carpal tunnel.
 - C. Repeat the EMG and nerve conduction studies.
 - D. Give 2 weeks of broad-spectrum antibiotics.
-

482.

An 80-year-old woman presents to your clinic with chronic back pain. She says that she is frequently short of breath. Also, when she walks to the grocery store, she frequently feels a pain in her chest. She describes the pain as a mild pressure. When she rests, the pain goes away. On physical examination, she has dorsal kyphosis with a protuberant lower abdomen. You are concerned that she may have osteoporosis.

Which of the following is not a clinical feature of osteoporosis?

- A. Pulmonary dysfunction
 - B. Exertional chest pain relieved with rest
 - C. Dorsal kyphosis
 - D. Back pain
 - E. Protuberant lower abdomen
-

483.

A 43-year-old heart transplant recipient comes to the hospital for evaluation of severe foot pain. This pain has been present for 12 hours and hurts even with the slightest pressure to the foot. He received his transplant 3 months ago and has had no problems with function or rejection. He has no prior musculoskeletal problems, no fever, or other new symptoms. PMH: Hx of duodenal ulcer disease and transplant. Meds: nizatidine, prednisone, cyclosporine, amlodipine, and aspirin. Labs: WBC: 13,000, Hct: 40, SGOT: 30, SGPT: 22.

Of the following, what is the most likely cause of this patient's problem?

- A. Aspirin
 - B. Alcohol use
 - C. Group A *Streptococcus*
 - D. Cyclosporine
 - E. Nizatidine
-

484.

A 47-year-old man with benign prostatic hypertrophy develops prostatitis. He is placed on terazosin and ciprofloxacin. His other medications include omeprazole (reflux), erythromycin (acne rosacea), and lisinopril (hypertension). He returns 3 weeks later following a ski vacation with a severely painful left Achilles tendon.

Of the following, what is the most likely explanation?

- A. Adverse effect due to omeprazole
 - B. Overuse due to recent ski trip
 - C. Drug interaction due to erythromycin/terazosin
 - D. Drug interaction due to lisinopril/ciprofloxacin
 - E. Adverse effect due to ciprofloxacin
-

485.

A 74-year-old Caucasian male presents with chronic intermittent elbow pain and swelling. See image (see Appendix B color image Figure 11):



This patient is not at risk for:

- A. Renal insufficiency
- B. Cardiovascular morbidity/mortality
- C. Rheumatoid arthritis
- D. Disability
- E. Metabolic syndrome

486.

A 44-year-old Caucasian male presents to the emergency department with a swollen left knee for 4 days. He has experienced 2 episodes of podagra within a year. He denies any other medical problems, but admits to drinking beer on weekends. He does not take any medications.

PHYSICAL EXAM:	Temp: 99.6° F, BP 140/86, P 90 reg, RR 12
Skin:	Mild erythema and warmth over dorsum of left knee
Lungs:	CTA
Cor:	NI S1, S2; no murmurs, rubs, or gallops
Abd:	Soft, with normal bowel sounds
MS:	No tophi or nodules noted; large left knee effusion is present

Knee arthrocentesis removed 20 cc of yellow, turbid fluid. Aspiration confirmed negatively birefringent monosodium urate crystals.

Which of the following strategies will be most effective in preventing further episodes of joint attacks?

- A. Dietary and lifestyle changes.
 - B. Start allopurinol and titrate to serum uric acid < 6.0 mg/dL.
 - C. Start IV colchicine as prophylaxis for 6 months.
 - D. Start ibuprofen 800 mg PO every 6 hours.
 - E. Alkalinize the urine.
-

487.

A 45-year-old, obese Hispanic male with a history of chronic back pain presents with diffuse arthralgias, myalgias, fatigue, and sleep disturbance for several months. His wife remarks that he snores loudly almost every night. He notes that morning stiffness lasts 30 minutes, but he finds that mornings are the best time of the day for him. He remarks that activity tends to make his symptoms worse. Your evaluation notes multiple tender points along his paraspinal muscles and decreased flexion of the spine. He has been on hydrocodone 10/325 three times a day for the last 2 years with partial relief.

Which test would be least helpful in evaluating this patient?

- A. Testosterone
 - B. Thyroid function tests
 - C. Sleep Study
 - D. HLA-B27
 - E. Back x-rays
-

488.

A 34-year-old Hispanic female presents with 8 weeks of pain in her fingers. She notes morning stiffness lasting 1–2 hours. She denies rashes, fever, diarrhea, weight loss, Raynaud's, photosensitivity, oral ulcers, sicca symptoms, or family history of autoimmune diseases. She has been taking ibuprofen, which helps some with her symptoms. Image of her hands is shown below.

LABS: RF negative, CCP negative, ANA negative, ESR 48, CRP 1.31 mg/dL, Hgb 10.5



What is the most likely diagnosis?

- A. Systemic lupus erythematosus (SLE)
- B. Rheumatoid arthritis (RA)
- C. Gout
- D. Osteoarthritis (OA)

489.

A 65-year-old male has longstanding seropositive rheumatoid arthritis (RA) for the last 7 years.

His RA has been stable and well controlled on the following meds: methotrexate, rituximab, and prednisone 5 mg/day. PMH is unremarkable for any other medical problems. Today, he presents to your office with intermittent shortness of breath for a month. His activities of daily living have become more of a burden due to his shortness of breath. He also tires easily. He denies any fevers, cough, night sweats, sputum production, or notable weight loss. He does not smoke or drink alcohol.

PHYSICAL EXAM:	Temp: 98.6° F, BP 140/85, P 80 reg, RR 14
Skin:	No rashes
Lungs:	Bilateral coarse rhonchi
Cor:	NI S1 S2; S4 gallop is noted; No murmurs or rubs
Abd:	Benign
Exts:	No clubbing, cyanosis; trace ankle edema bilaterally

MCPs with ulnar deviation bilaterally, but no joint synovitis or effusions are noted.

Which of the following would least likely cause the patient's current symptoms?

- A. Methotrexate pneumonitis
 - B. Rheumatoid lung
 - C. *Mycobacterium avium* complex (MAC) infection
 - D. Coronary artery disease
 - E. Congestive heart failure
-

490.

A 75-year-old Caucasian male presents to the emergency department with diplopia that started 1 day ago. His wife noted that for a month he has had weight loss (15 lbs), which she related to his TMJ pain and poor appetite. She also remarked that he had been taking 2 aspirins a day to help with headaches and his shoulder pains, which she attributes to him mowing the lawn in the heat.

VITALS: Temperature: 100.1° F, BP 120/76, HR 88

HEENT: Noted prominent cord-like temporal arteries with absent pulses on the left, good pupillary reflexes, normal conjunctiva. Percussion of maxillary sinuses are nontender. Oral aperture is normal without any TMJ crepitance. ROM at both shoulders were painful but without motor weakness.

Labs noted a Hgb 9.2 g/dL and ESR 112.

What is the most likely diagnosis?

- A. Giant cell arteritis
 - B. Metastatic carcinoma to the brain
 - C. Migraines
 - D. Sinusitis
 - E. Trigeminal neuralgia
-

491.

A 28-year-old female with rheumatoid arthritis presents to the clinic to discuss family planning. She recently married and is interested in becoming pregnant, but is unsure how to proceed given the medications she is currently taking. Her rheumatoid arthritis has been difficult to control in the past, but remains controlled with current medications. These include methotrexate, hydroxychloroquine, naproxen, and infliximab. She also reports she has been slowly tapering prednisone due to a recent flare-up 5 months ago.

Which of the following medications would be safe to continue in preparation for pregnancy?

- A. Methotrexate
 - B. Hydroxychloroquine
 - C. Naproxen
 - D. Infliximab
 - E. Prednisone
-

492.

A 56-year-old Caucasian female with systemic lupus erythematosus is well controlled on hydroxychloroquine and azathioprine. She presented with acute swelling and extreme pain and tenderness in her 1st left toe after drinking beer and having seafood gumbo at a friend's house the previous evening. She noted a prior episode about 4 months ago after eating at an "all you can eat seafood and steak" buffet.

LABS: Compensated polarized light microscopy of the joint fluid shows negatively birefringent crystals.

You treat her with naproxen 500 mg bid and the symptoms resolve after 3 days. She has been asymptomatic for 2 days. You stop the NSAID and are considering therapy for prevention of a recurrence.

Which of the following medicines would you avoid prescribing in this patient due to potential for drug interactions?

- A. Colchicine
 - B. Allopurinol
 - C. Ibuprofen
 - D. Prednisone
 - E. Acetaminophen
-

ALLERGY / IMMUNOLOGY

493.

During B-cell development, which of the following is expressed the earliest?

- A. Surface immunoglobulin G
 - B. Surface immunoglobulin M
 - C. Surface immunoglobulin D
 - D. Surface immunoglobulin E
 - E. Surface immunoglobulin A
-

494.

A 25-year-old male presents with recurrent episodes of abdominal pain and stress-induced edema of the lips and tongue. Occasionally with severe stress, he will have laryngeal edema also. As a child, he suffered from recurrent bouts of abdominal pain and hand swelling. As an adult, the swelling episodes have gotten progressively worse.

With which of the following proteins is he most likely to have a low functional or absolute level?

- A. C1 esterase inhibitor
 - B. C5A
 - C. IgE
 - D. Surface immunoglobulin A
 - E. Bradykinin
-

495.

A 20-year-old woman presents with recurrent sinopulmonary infections and has developed severe respiratory insufficiency. CXR shows a right upper lobe infiltrate with central and distal bronchiectasis. She has depressed levels of IgA, IgE, and IgG2 subclass on laboratory testing. Additionally, she is noted to have anergy to cutaneous testing. She has had progressive loss of muscle coordination since she was 2 years old, and from the age of 10, she has been confined to a wheelchair.

Which of the following is her likely diagnosis?

- A. Ataxia-telangiectasia
 - B. Severe combined immunodeficiency
 - C. An abnormality on chromosome 12
 - D. Friedreich ataxia
 - E. Cystic fibrosis
-

496.

A 45-year-old woman with an abdominal mass palpable in her right upper quadrant is seen for evaluation. You order an abdominal computed tomography exam. While at the radiology suite, she receives her intravenous contrast. Within minutes of the injection she develops widespread urticaria, facial flushing, and her tongue starts to swell. She also becomes hoarse and says that her “throat is swelling up.” She develops stridor and requires emergency intubation with mechanical ventilation.

Which of the following has caused her acute event?

- A. An IgE-mediated event against native proteins
 - B. Direct activation of mediator release from mast cells, basophils, or both
 - C. A deficiency of C1 esterase inhibitor
 - D. Contrast dye transformation into formaldehyde
 - E. An IgE-mediated event against haptens
-

497.

A 26-year-old woman has had a 2-year history of rash. She describes the rash as reddish-brown spots that sometimes become raised bumps that itch, especially when she scratches them or gets hot. Additionally with these “bumps,” she has had flushing of her face, dizziness, and some abdominal pain. She has noted that her attacks can occur after she drinks beer or wine or if she takes an ibuprofen. She had an upper GI series done last week that showed an ulcer in her duodenum.

Which of the following is her most likely diagnosis?

- A. Common variable immunodeficiency
 - B. Systemic mastocytosis
 - C. Anaphylaxis to several agents
 - D. Hereditary angioedema
 - E. Urticaria
-

498.

A 36-year-old man works as a school principal. He complains of increasingly frequent episodes of viral illnesses and sinusitis. He has 6–7 colds a year, as well as flu-like episodes that leave him feeling exhausted for several days to weeks at a time. He denies use of drugs or alcohol and states that he has had only 1 heterosexual partner for the last 5 years. He remembers that as a child he had numerous bouts of tonsillitis, strep throat, and upper respiratory infections.

Which of the following laboratory tests is most likely to help reveal his underlying problem?

- A. HIV test
- B. Serum immunoglobulins
- C. Serum protein electrophoresis
- D. Cold agglutinins
- E. CH50

499.

A 23-year-old graduate student with a negative past medical history, except for gonorrhea at the age of 18, presents for evaluation. He says that he began having problems when he started working in the basic science research laboratory of his school. He says that since working there he has had episodes of shortness of breath, stuffy nose, cough, fever, and chills. He feels bad most of the day. He feels better by Sunday evening, but on Monday his symptoms return. He works with mice in a laboratory at the school from Monday through Friday. He says that he has been well the past few days (today is Monday). He doesn't smoke and occasionally drinks a beer on the weekend. On physical examination, you find nothing—everything is normal. However, a chest radiograph is done and shows ill-defined patchy infiltrates. His laboratory studies, including CBC, lytes, BUN, and creatinine, are all normal. His ESR is slightly elevated at 28. Pulmonary function studies are done and show reduced lung volumes.

Which of the following is the most likely diagnosis?

- A. Asthma
 - B. Acute hypersensitivity pneumonitis
 - C. Granulomatosis with polyangiitis
 - D. Acute bronchitis
 - E. Leptospirosis
-

500.

A 25-year-old woman with a history of intermittent wheezing and cough after vigorous exercise presents for follow-up. She has never had an attack without it being exercise-induced. She notes that she had an attack earlier today during an aerobics class. She thinks that she developed symptoms today because she did not have enough time to warm up prior to exercise.

Which of the following treatments would most likely prevent her next attack?

- A. Inhaled beclomethasone before she exercises
 - B. Prednisone 30 minutes before she exercises
 - C. Theophylline therapy before she exercises
 - D. Metered dose albuterol inhaler before she exercises
-

501.

A 40-year-old man presents to you with a history of recurrent rash. He describes an urticarial rash that sometimes leaves a discoloration after the lesions have resolved. He reports intermittent arthralgias with the rash. Otherwise, his physical examination is normal. He currently has some of the lesions. His laboratory is significant for an ESR of 76 mm/hour.

Which of the following should you do next to evaluate his findings?

- A. IgE
- B. Patch test
- C. C1 esterase inhibitor activity level
- D. Skin biopsy
- E. Wheal-and-flare allergy skin test battery

502.

A 20-year-old woman presents with a history of recurrent fevers and associated sputum production. The sputum is purulent and foul smelling. She has a past medical history of recurrent upper respiratory infections. Additionally, she has had a *Giardia* diarrheal infection twice in the last 8 years.

Pertinent findings on her physical examination:

Coarse crackles in the left chest with decreased air movement;
positive for foul-smelling sputum.
She has an enlarged spleen with a span of 10 cm.

Laboratory:

CBC is normal.
Serum IgG is 80 mg/dL (normal 800–1500 mg/dL).
Serum IgA is 20 mg/dL (normal 90–325 mg/dL).

Which of the following is the most appropriate treatment?

- A. Corticosteroids
 - B. Monthly intravenous immunoglobulin
 - C. Splenectomy
 - D. Bone marrow transplantation
 - E. IgA transfusion
-

503.

A 40-year-old man with aplastic anemia is administered a treatment. Ten days after beginning therapy with this agent, he develops clinical disease that presents with fever, malaise, arthritis, and nausea. Soon after, he develops an urticarial rash. He worsens and develops melena and lymphadenopathy. Laboratory is significant for a markedly diminished C3, C4, and CH50. He has high levels of circulating immune complexes.

This is likely due to which of the following therapeutic agents?

- A. Gold therapy
 - B. IVIG
 - C. Equine antithymocyte globulin
 - D. Corticosteroids
 - E. Alkylating agent and corticosteroid
-

504.

A 43-year-old woman presents with severe urticaria, facial flushing, and tongue swelling after a bee sting. Her sister had a similar reaction to contrast dye.

Which of the following describes how a bee sting causes anaphylaxis?

- A. By causing an IgA-mediated reaction against protein-hapten conjugants.
- B. By causing an IgE-mediated event against protein-hapten conjugants.
- C. By causing a direct activation of mediator release from mast cells, basophils, or both.
- D. It's due to a deficiency of C1 esterase inhibitor.
- E. By causing an IgE-mediated reaction against proteins in the bee venom.

505.

A 42-year-old woman with no prior medical history presents as a new patient. Her eldest sister has a history of anaphylaxis to contrast dye, and her other older sister has a history of anaphylaxis to bee stings. She comes in today with a sore throat. You are able to confirm *Streptococcus pyogenes*, and you start her on the appropriate oral antibiotic for this infection. She returns that afternoon to the emergency department with a complaint of urticaria, facial flushing, and her tongue starts to swell. She responds to therapy and is observed in the emergency department.

Which of the following is the mechanism for her anaphylaxis?

- A. She has a deficiency of C1 esterase inhibitor.
- B. She had IgE recognition of native proteins.
- C. She had direct activation of mediator release from mast cells, basophils, or both.
- D. She had IgE recognition of protein-hapten conjugants.
- E. She somehow got exposed to contrast material while in your office.

506.

A 17-year-old male presents with abdominal pain, nausea, and vomiting. With this episode, he has noted a rash and complains of severe arthralgias. He has never had this before.

His physical examination is significant for palpable purpura on his buttocks and lower extremities. None of the lesions are above his waist. Additionally, he has guaiac-positive stool. Laboratory is sent and is remarkable for a urinalysis that shows mild proteinuria and red blood cell casts. Other studies are normal, including his CBC.

Which of the following is the most likely diagnosis?

- A. Henoch-Schönlein purpura
- B. Leukemia
- C. Anaphylaxis to a hapten
- D. Anaphylaxis to a protein
- E. Job syndrome

507.

Which of the following is true about T cells?

- A. T cells lack readily detectable immunoglobulin except for IgE on their membranes.
 - B. T cells lack readily detectable immunoglobulin except for IgM on their membranes.
 - C. T cells lack readily detectable immunoglobulin except for IgA on their membranes.
 - D. T cells lack readily detectable immunoglobulin of **any** class on their membranes.
 - E. T cells lack readily detectable immunoglobulin except for IgD on their membranes.
-

508.

Which of the following is/are true about immunoglobulin A (IgA)?

- A. IgA provides defense against local infections in the respiratory, gastrointestinal, and the genitourinary system.
 - B. IgA is the predominant immunoglobulin in body secretions.
 - C. IgA exists as 2 subclasses.
 - D. IgA can prevent virus binding to epithelial cells.
 - E. All of the statements are true.
-

509.

A 40-year-old man with a history of recurrent sinopulmonary infections presents for evaluation. He recovers from them fairly quickly, but he has between 4 and 6 episodes a year. Recently, he received an infusion of packed red blood cells after a major motor vehicle accident. During the infusion, he developed anaphylaxis. The blood bank and hospital checked for mismatch and found no evidence of incompatibility.

Which of the following is his likely underlying condition?

- A. Isolated IgA deficiency
 - B. Terminal complement deficiency
 - C. Systemic mastocytosis
 - D. IgG deficiency
 - E. IgD deficiency
-

510.

Which of the following statements is/are true regarding immune-complex disease?

- A. Immune complexes do not have to persist in the circulation for the development of renal manifestations.
- B. Signs and symptoms of immune-complex disease develop from the deposition of immune complexes in the reticuloendothelial system.
- C. Most immune complexes are removed by the mononuclear phagocyte (reticuloendothelial) system.
- D. The rash of cutaneous necrotizing vasculitis is not an example of immune-complex disease.
- E. All of the statements are correct.

511.

Class I HLA antigens are expressed on all cells except which of the following?

- A. Mature red blood cells
 - B. Reticulocytes
 - C. Reticulocytes and mature red blood cells
 - D. White blood cells
 - E. Purkinje cells
-

512.

A 33-year-old woman presents with facial pain and nasal congestion. She reports onset of a sore throat and rhinorrhea 5 days ago. Over the past 48 hours, she has had facial pressure over the maxillary sinus and yellow nasal discharge. On exam: Temp 99.2° F, BP 110/70 mmHg. Nose: swollen turbinates. Neck: no adenopathy. Chest: clear.

Of the following, what would you most likely recommend?

- A. Decongestants/nasal irrigation + amoxicillin
 - B. Decongestants/nasal irrigation
 - C. Decongestants/nasal irrigation + TMP/Sulfa
 - D. Decongestants/nasal irrigation + amoxicillin/clavulanate
 - E. Decongestants/nasal irrigation + metronidazole
-

513.

A 45-year-old woman presents with complaints of episodic abdominal pain. On a few occasions, she reports that she gets swelling of her lips, tongue, and occasionally her “throat.” The most recent incident occurred while she was having a dental extraction. Many of her “swelling” episodes seem to occur after she has experienced some type of similar stress-induced event.

She is likely to have abnormal functioning levels of which of the following proteins?

- A. T-cell receptor, alpha chain
 - B. C5A
 - C. IgE
 - D. C1 esterase inhibitor
 - E. Cyclooxygenase
-

514.

You are seeing a man with Wiskott-Aldrich syndrome. He has recurrent eczema and bloody diarrhea.

Which of the following is true about his disease?

- A. It cannot be treated successfully with bone marrow transplantation.
- B. It is associated with low IgA.
- C. It is associated with low IgE.
- D. He does not have increased susceptibility to infection.
- E. It is associated with low IgM.

515.

A woman presents to the emergency department immediately after receiving a bee sting. She has a past history of anaphylaxis and lost her EpiPen®.

She has urticaria but is not having hypotension.

Which of the following should you do next?

- A. Give epinephrine 0.3 mg to 0.5 mg IM.
 - B. Give epinephrine 1/1000 0.5cc SQ.
 - C. Give methylprednisolone 2 mg/kg IV.
 - D. Start a beta-blocker.
 - E. Give epinephrine 1/10,000 0.5 cc SQ.
-

516.

A 14-year-old student presents to the emergency department with a fever of 103° F for 5 days and severe sore throat. She appears toxic and complains of a generalized headache, myalgias, lethargy, and severe malaise. Her physical examination is remarkable for swollen, erythematous lips and tongue. She has cervical lymphadenopathy with 1 node measuring 2 x 3 cm. She has bilateral conjunctivitis, and her palms and soles are thickened, red, and swollen in appearance.

CBC shows a WBC of 15,000 with a mild left shift; platelets are elevated at 550,000; she is not anemic. A rapid streptococcal antigen test is negative, and a Monospot is also negative.

Which of the following is the most likely diagnosis?

- A. Kawasaki disease
 - B. Cryoglobulinemia
 - C. Bacterial endocarditis
 - D. Toxic epidermal necrolysis
 - E. Takayasu arteritis
-

517.

A patient is scheduled for eye surgery in several weeks. He is currently on a nonsteroidal antiinflammatory agent.

Which of the following nonsteroidal antiinflammatory drugs irreversibly inhibits cyclooxygenase?

- A. Acetaminophen
 - B. Ibuprofen
 - C. Ketoprofen
 - D. Aspirin
 - E. Diclofenac
-

DERMATOLOGY

518.

A 45-year-old man comes to see you because of vesicles on sun-exposed areas, which have been present episodically for 7 years. He has used alcohol to excess for many years. He takes no medications and has not seen a physician for many years. Your evaluation confirms a diagnosis of porphyria cutanea tarda (PCT).

What other diagnosis listed below should you consider?

- A. Paraneoplastic pemphigus
 - B. Hepatitis C
 - C. Urinary tract infection
 - D. Acanthosis nigricans
 - E. Hepatitis B
-

519.

A 60-year-old woman comes to you complaining of glossitis, weight loss, diabetes, and a skin rash that has developed over the past 4 months. She has had no other significant illness. Her only medication is a multivitamin with calcium and zinc. Your examination shows erosions of the legs, intertriginous areas, and mucosal surfaces.

Which of the following is the most likely diagnosis?

- A. Carcinoid syndrome
 - B. Primary amyloidosis
 - C. Glucagonoma syndrome
 - D. Sweet syndrome
-

520.

A 27-year-old woman comes to your office because of a lesion on her leg, which she believes has slowly changed color over the past 6 months. She has fair skin, blonde hair, and blue eyes. She denies local trauma, and there is no family history of skin disease. Your examination shows an erythematous plaque with variations of brown and black coloration and an irregular border. The lesion is 1 cm in diameter.

Which of the following is the most appropriate treatment?

- A. Remove the lesion with liquid nitrogen.
 - B. Perform a 3-mm biopsy of the brown area.
 - C. Refer her for excisional biopsy of the lesion.
 - D. Advise the patient that no intervention is needed at this time.
-

521.

A 35-year-old nurse works in a neonatal intensive care unit. She has to wash her hands multiple times in a day—exceeding 30–40 episodes daily. She has noted a small skin lesion in the 4th interdigital web of her left hand. It is erosive in character.

Of the following, what is the most likely etiology?

- A. Acanthosis nigricans
 - B. Cutaneous bacterial infection
 - C. Human papillomavirus infection
 - D. Plaques psoriasis
 - E. Cutaneous candidal infection
-

522.

A 16-year-old girl presents with a 3-year history of predominantly open and closed comedones of the face, chest, and back. Close inspection reveals an occasional pustule and postinflammatory macules.

Which of the following is the most helpful medication for her acne vulgaris?

- A. Topical sulfacetamide lotion
 - B. Topical antibiotic
 - C. Topical tretinoin
 - D. Systemic tetracycline
-

523.

A 20-year-old man consults you because of itchy lesions that he has been told are “eczema.” He has a lifelong history of asthma and seasonal rhinitis. Your examination reveals popliteal and antecubital lichenification and hyperpigmentation. He also has similar lesions developing on the face.

Which of the following would you not use for treatment of facial lesions for more than 3–4 weeks?

- A. Lubrication
 - B. Topical steroids
 - C. Pimecrolimus cream
 - D. Tacrolimus ointment
-

524.

A 70-year-old man comes to the emergency department with a 6-week history of progressive weight loss and generalized fatigue. He has difficulty getting up from a sitting position, and complains of room-to-room dyspnea in his home. Your examination reveals erythema and telangiectasia of his cuticles, red papules over the joints of his hands, and proximal muscle weakness.

He most likely has which of the following?

- A. Sarcoidosis and muscle atrophy
 - B. Multiple sclerosis and idiopathic myalgia
 - C. Dermatitis medicamentosa and myositis
 - D. Dermatomyositis and cancer
-

525.

A 35-year-old African-American woman has a 4-month history of tender nodules on pre-tibial surfaces associated with arthralgias. The remainder of the examination is normal. Biopsy of one of the nodules shows a septal panniculitis. Her chest x-ray shows bilateral hilar adenopathy. Transbronchial lung biopsy reveals non-caseating granuloma.

You diagnose sarcoidosis, and advise her that the lesions on her legs represent which of the following?

- A. Cutaneous sarcoidosis
 - B. Unrecalled trauma
 - C. Erythema nodosum
 - D. A viral exanthem
-

526.

A 17-year-old female was well until 2 weeks ago when she sustained multiple mosquito bites, which she has been scratching. Today, the lesions are erythematous and covered with honey-colored crusts.

The most likely diagnosis is which of the following?

- A. Impetigo vulgaris
 - B. Erythema nodosum
 - C. Acne vulgaris
 - D. A drug eruption
-

527.

A 65-year-old man has had itchy bullae that come and go on his legs for several years. In the past 2 months, he has developed new bullae in the creases of his arms, medial thighs, and lower abdomen. Some of the bullae are on an erythematous base, and others are on normal skin. Although there are bullae in his mouth, they do not interfere with his eating.

Which of the following is the most likely diagnosis?

- A. Erythema multiforme
 - B. Dermatitis herpetiformis
 - C. Pemphigus vulgaris
 - D. Bullous pemphigoid
-

528.

A 69-year-old man consults you because of a diffuse, scaling eruption that almost completely covers his entire body. He reports that the symptoms began shortly after he began to take phenytoin for a seizure disorder. Your examination shows confluent erythematous patches with contiguous scale, generalized lymphadenopathy, and hepatomegaly. Laboratory testing reveals peripheral eosinophilia.

His exfoliative dermatitis is not likely to be associated with which of the following?

- A. Herpetic infections
 - B. Drugs
 - C. Malignancy
 - D. Psoriasis
-

529.

A 50-year-old woman is seen for evaluation of rash. She was in her usual excellent state of health until 1 week ago while on vacation in Hawaii, when she developed frequency and dysuria. She was treated with an antibiotic for 3 days, finishing the antibiotic 2 days ago. Physical exam shows severe sunburn only on exposed areas of skin.

Which of the following antibiotics did she receive?

- A. Cefixime
 - B. Amoxicillin/clavulanate
 - C. Nitrofurantoin
 - D. Doxycycline
-

530.

A 30-year-old dishwasher presents with scaling of her hands. Recently, she has noted vesicle formation also. She has always had dry scaly lesions on her hands, and they remit and worsen over time. Sometimes, the lesions are quite painful. She has never had asthma or skin problems as a child. Recently, she noted that the small vesicles on the sides of her fingers itch quite a bit.

Of the following, what is the most likely diagnosis?

- A. Herpes simplex I
 - B. Dyshidrotic eczema
 - C. Atopic dermatitis
 - D. Lichen planus
 - E. Varicella zoster
-

531.

A woman with a history of having multiple telangiectasias on her lips, face, feet, and in her nail beds presents for evaluation of recurrent epistaxis. The telangiectasies are “spider-like”—when you pull the overlying skin over an individual lesion, a central area with radiating vessels is noted. Many members of her family have similar findings, she says.

Which of the following is the most likely diagnosis?

- A. Osler-Rendu-Weber disease
 - B. CREST
 - C. Actinically damaged skin
 - D. SLE
 - E. Scleroderma
-

532.

A 30-year-old gay man presents with a diffuse maculopapular rash over his trunk, head, neck, palms, and even his soles! He has had generalized lymphadenopathy for a few days. He has a history of a painless lesion on his anus about 2 months ago.

Which of the following is the most likely diagnosis?

- A. HIV
 - B. SLE
 - C. Bacterial endocarditis
 - D. Syphilis
 - E. Dermatomyositis
-

533.

A 35-year-old pop singer visits his doctor for his yearly checkup. Physical examination is unremarkable except for white patches involving his face, hands, trunk, anus, and genitalia. The white spots have been present for several years.

This condition has not been associated with which of the following?

- A. Vitamin B₁₂ deficiency
 - B. Type 1 diabetes mellitus
 - C. Folate deficiency
 - D. Adrenal insufficiency
 - E. Hypothyroidism
-

534.

A 32-year-old woman presents to the emergency department with a complaint of right thumb pain. She reports that about 12 hours ago she was caring for a stray cat outside her home and the cat bit her on the thumb. She immediately washed her hand but noticed continued pain and presented to the emergency department for evaluation. Her past medical history is otherwise unremarkable and she takes no medications.

On physical exam, she is afebrile, blood pressure is 115/75, pulse 86. Examination of her hand reveals 2 small puncture wounds on the dorsum of the right thumb between the DIP and PIP joint that appear clean and dry. There is no surrounding erythema or induration. She has full range of motion of the right thumb but with some discomfort. X-ray of the hand shows no signs of osteomyelitis.

What is the next best step in the management of this patient?

- A. Amoxicillin-clavulanate
 - B. Cephalexin
 - C. Erythromycin
 - D. Erythromycin and clindamycin
 - E. Moxifloxacin
-

535.

A 40-year-old obese woman presents to the emergency department with right lower extremity swelling and redness.

Exam: T 99.4° F, BP 140/80, P 80, and RR 14. A superficial erythematous patch with indistinct borders is present in the right lower extremity, extending to the mid-calf. It's warm and tender to palpation. There's no evidence of ulcer, exudate, or drainable abscess. There's no lymphadenopathy. Labs: WBC 10,000 with 70% PMNs.

Which of the following is the most appropriate empiric outpatient therapy?

- A. Vancomycin
 - B. Cephalexin
 - C. Doxycycline
 - D. Trimethoprim/sulfamethoxazole
-

GENERAL INTERNAL MEDICINE

536.

Which of the following potential toxins is associated with an osmolar gap and an anion gap acidosis?

- A. Aspirin
 - B. Methanol
 - C. Isopropyl alcohol
 - D. Ethanol
 - E. Paraldehyde
-

537.

A study is done to evaluate mammography as a screening tool for women between the ages of 40 and 45. 1,100 mammograms are obtained. 25 women have a positive mammogram and turn out to have breast cancer. 175 women have positive mammograms and do not have cancer. 890 women have negative mammograms and do not have cancer. 10 women with negative mammograms end up having breast cancer.

Of the following choices, what is the correct positive predictive value (PPV) of the test?

- A. 83.5%
 - B. 98.9%
 - C. 71.4%
 - D. 12.5%
 - E. 31.4%
-

538.

A study is done to test a new treatment for heart failure. Patients received the usual CHF treatment plus new drug X, or usual treatment plus placebo. In this study, 10/50 patients who received the new drug died, and 20/50 patients who received the placebo died.

Of the choices below, which is the correct number needed to treat (NNT) to prevent one bad outcome for this new drug?

- A. 5
 - B. 10
 - C. 15
 - D. 20
 - E. 50
-

539.

An 86-year-old woman who lives in a nursing home is admitted with severe aspiration pneumonia. She is unconscious with a fever of 104° F. ABG 7.22/52/66. She has been started on IV antibiotics and fluids. Her nephew is the durable power of attorney for her health care. The patient has never completed a living will or advance directives. The nephew meets with you, stating that his aunt has become demented over the past few years, and the nephew would like IV fluids and antibiotics discontinued, with comfort care only.

Which of the following statements about the nephew is true?

- A. The nephew's instructions can be carried out only if it is determined that he had discussed this issue with his aunt and is carrying out substituted judgment.
 - B. The patient has a son who is next of kin; and therefore, the nephew can't make medical decisions for her.
 - C. Since the patient has not left specific advance directives, instructions to discontinue IVF and antibiotics should not be carried out.
 - D. The nephew's request to discontinue IVF and antibiotics is within his capacity to act as the patient's durable power of attorney for health care.
 - E. Get an ethics committee consult to determine if the nephew can make these decisions.
-

540.

A 21-year-old college student is brought to the emergency department by her roommate for symptoms of headache and fever with a stiff neck over the past 18 hours. On exam, she is somnolent but able to be aroused, with a temp of 102.2° F, BP 100/52, P 112. Nuchal rigidity is present. The remainder of her exam is unremarkable. WBC is 24,000. The patient gives consent for a lumbar puncture. You order a stat dose of IV antibiotics, which the patient overhears. She becomes agitated, and refuses the antibiotics.

You carefully explain the high risk of death from untreated meningitis. The patient continues to refuse antibiotics and becomes more agitated.

Of the following options, what should you do?

- A. Treat with IV fluids only, because antibiotics carry a risk and shouldn't be given without patient consent.
 - B. Treat with antibiotics because the patient has a life-threatening condition.
 - C. Obtain a court order urgently for treatment.
 - D. Obtain consent from the patient's roommate and give antibiotics.
-

541.

A 79-year-old woman reports problems with urinary incontinence on a daily basis. She has to void many times during the day, yet leaks urine frequently before she can get to the restroom. She has not had hematuria or dysuria. Meds: omeprazole, sertraline, and enalapril. U/A is normal.

Of the following, what is the most likely cause of the incontinence?

- A. Detrusor underactivity
- B. Sphincter dysfunction
- C. Detrusor overactivity
- D. Side effect of sertraline
- E. Side effect of enalapril

542.

A woman makes an appointment for a physical exam when she turns 65. She has not seen a physician for 12 years. Her last visit was for a skin rash. She has not had a regular doctor because she lacked insurance.

Appropriate preventive care should include which of the following?

- A. Mammogram, Pap smear, and colonoscopy
 - B. Breast exam, mammogram, and Pap smear
 - C. Breast exam, mammogram, and CBC
 - D. Mammogram, CBC, and colonoscopy
 - E. Breast exam, mammogram, and colonoscopy
-

543.

Which of the following statements is true regarding Wernicke encephalopathy?

- A. In the absence of a response to glucose, thiamine should be administered.
 - B. The frontal cortex is most commonly affected.
 - C. After the patient responds to emergent therapy, she may develop profound amnesic psychosis.
 - D. Alcohol consumption is required to produce the syndrome.
 - E. Most patients present with the triad of ophthalmoplegia, ataxia, and encephalopathy.
-

544.

A 29-year-old male with history of bipolar disorder presents with complaints of nausea, vomiting, and diarrhea. He has no abdominal pain but has been weaker in the past 3 days and has been falling frequently. He was noted to be hypertensive at his last clinic visit 2 weeks ago (200/110 mmHg) and was started on benazepril. He denies any drug use, hepatitis risk, new food experiences, or previous episodes of GI distress. Meds: benazepril, carbamazepine, lithium, melatonin, diphenhydramine, and cimetidine.

On exam, his VS are T 100.4° F, P 120, BP 160/100; skin: perioral acne; chest: clear; abd: soft, nontender; neuro: fasciculations in muscles, reflexes 3–4⁺ bilaterally, cogwheel rigidity present; gait: marked ataxia.

Which of the following is the most likely cause of this patient's problem?

- A. Benazepril/lithium interaction
 - B. Carbamazepine/lithium interaction
 - C. Carbamazepine overdose
 - D. Cimetidine/lithium interaction
 - E. Benazepril/carbamazepine interaction
-

545.

A 65-year-old man presents with severe right-sided eye and facial pain. He has nausea and vomiting. He has noticed “colorful” halos around lights and can no longer see very well. His left eye is quite erythematous, and the pupil is dilated and fixed.

Which of the following is the next test to do to confirm your diagnosis?

- A. Emergent referral to an ophthalmologist for gonioscopy
 - B. CT of the head
 - C. MRI of the orbits
 - D. Cerebral angiography
-

546.

A 41-year-old male with HIV (CD4 count 410) comes into the clinic for a routine evaluation. Funduscopy exam is done and shows cotton wool spots without hemorrhage. He complains of no visual symptoms.

The most likely etiology for the eye finding is which of the following?

- A. Toxoplasmosis
 - B. HIV retinopathy
 - C. Cytomegalovirus retinitis
 - D. *Cryptococcus*
 - E. *Cryptosporidia*
-

547.

A 29-year-old G1P0 woman with Type 1 diabetes mellitus presents at 16-weeks pregnant with increasing pedal edema. Her BP is 170/110 mmHg. A urinalysis shows 3+ proteinuria. She has no headache and no neurologic symptoms.

Which of the following treatments would you most likely recommend?

- A. Minoxidil
 - B. Nitroprusside drip
 - C. Lisinopril
 - D. Hydrochlorothiazide
 - E. Methyldopa
-

548.

A 66-year-old man presents with complaints of decreased hearing in his right ear. He was recently diagnosed with prostate cancer. He had presented with urosepsis because of urinary tract obstruction. He was successfully treated with gentamicin and ceftazidime. On exam, he has cerumen in both ear canals. The Weber test lateralizes to his right ear. A Rinne test shows air conduction louder in the left ear, bone conduction louder in the right ear.

Which of the following is the most likely cause of the hearing loss?

- A. Gentamicin toxicity
 - B. Cochlear osteosclerosis
 - C. Ménière disease
 - D. Cerumen impaction
 - E. Acoustic neuroma
-

549.

A 43-year-old heart transplant recipient comes to the hospital for evaluation of severe foot pain. The pain has been present for 12 hours and hurts even with the slightest pressure to the foot. He received his transplant 3 months ago, and has had no problems with function or rejection. He has no prior musculoskeletal problems. He denies having fever or other new symptoms.

MEDS: nizatidine, prednisone, cyclosporine, amlodipine, and aspirin

LABORATORY: WBC 13,000/ μ L; Hct 40%, SGOT 30 U/L; SGPT 22 U/L

Which of the following is the most likely cause of his problem?

- A. Aspirin
 - B. Alcohol use
 - C. Group A *Streptococcus*
 - D. Cyclosporine
 - E. Nizatidine
-

550.

A 39-year-old woman is seen for evaluation of rash. She was in her usual state of good health until 1 week ago while on vacation in Hawaii when she developed urinary frequency, urgency, and pain. She was started on an antibiotic and developed severe sunburn.

Which of the following antibiotics did she receive?

- A. Amoxicillin/clavulanate
 - B. Ciprofloxacin
 - C. Nitrofurantoin
 - D. Trimethoprim
 - E. Cefuroxime axetil
-

551.

You evaluate an independent 84-year-old woman who has had 3 falls in the past year. She has not sustained serious injury, but her family is worried about her ability to live alone. The patient states she simply slipped, and denies dizziness, chest pain, shortness of breath, palpitations, or other symptoms. Her only medical problems are osteoarthritis and a remote history of peptic ulcer disease. She takes acetaminophen 2–3 times a week. Her vision is good.

She does not drink alcohol and is a lifelong nonsmoker. The remainder of the history is negative.

Which of the following would be most helpful in evaluating this patient's risk of future falls?

- A. Head CT to evaluate for small vessel disease
 - B. Holter monitoring
 - C. "Get up and go" test
 - D. Romberg test
 - E. Lower extremity electromyography
-

552.

A serum level is useful in the management of poisoning except with which of the following agents?

- A. Amitriptyline
 - B. Acetaminophen
 - C. Carboxyhemoglobin
 - D. Aspirin
 - E. Methanol
-

553.

In a study of 2,271 patients with a history of colon cancer, fecal occult blood testing (FOBT) is done to screen for recurrent colon cancer. 146 patients have positive FOBT, and 2,125 patients have negative FOBT. Colonoscopy is done on all the patients, finding 36 cancers. 12 patients with positive FOBT have colon cancer, and 24 with negative tests have colon cancer.

Of the following choices, what is the correct sensitivity for FOBT?

- A. 8.2%
 - B. 33.3%
 - C. 94%
 - D. 98.4%
 - E. 50%
-

554.

A study is done to evaluate mammography as a screening tool for women between the ages of 40 and 45. 11,000 mammograms are obtained. 25 women have a positive mammogram and turn out to have breast cancer. 175 women have positive mammograms and do not have cancer. 890 women have negative mammograms and do not have cancer. 10 women with negative mammograms end up having breast cancer.

Of the following choices, what is the correct negative predictive value (NPV) of the test?

- A. 98.9%
- B. 96%
- C. 93%
- D. 12.5%
- E. 90%

555.

A prospective randomized study shows that a new treatment will improve survival for squamous cell lung cancer over current standard treatment guidelines. The survival rate increased from 30% survival to 60% in the study. The 95% confidence interval for the study was -2.5 to 80.6 . No confounding data were reported, and the patient population was very diverse in character, indicating proper randomization. The prospective aspect of this study was preserved with a very low dropout rate.

Based on this study, which of the following correctly states whether this new therapy provides significant benefit over the standard therapy?

- A. Yes, because the survival rate is so poor with this type of cancer that anything is better than nothing.
 - B. Yes, because the percentage of increase is significant.
 - C. No.
 - D. More information is needed to answer this question.
 - E. Yes, because the study was a prospective, randomized study.
-

556.

A study is done to evaluate mammography as a screening tool for women between the ages of 40 and 45. 1,100 mammograms are obtained. 25 women have a positive mammogram and turn out to have breast cancer. 175 women have positive mammograms and do not have cancer. 890 women have negative mammograms and do not have cancer. 10 women with negative mammograms end up having breast cancer.

Which of the choices below correctly states the sensitivity of mammography?

- A. 12.5%
 - B. 98.9%
 - C. 71.4%
 - D. 83.5%
 - E. 31.4%
-

557.

A study is done to evaluate mammography as a screening tool for women between the ages of 40 and 45. 1,100 mammograms are obtained. 25 women have a positive mammogram and turn out to have breast cancer. 175 women have positive mammograms and do not have cancer. 890 women have negative mammograms and do not have cancer. 10 women with negative mammograms end up having breast cancer.

Which of the choices below correctly states the specificity of the mammography?

- A. 71.4%
 - B. 83.6%
 - C. 98.9%
 - D. 12.5%
 - E. 31.4%
-

558.

A 29-year-old woman presents with hematemesis. She is found to have an Hct of 20. She receives IVF and is typed and crossed for transfusion. A repeat Hct two hours later is 14. The patient refuses the blood transfusion when it is brought in, because of religious convictions. Her husband, who is in the room with her, supports her stance. She has another episode of hematemesis while you await arrival of the surgeons.

Of the following options, what should you do?

- A. Give blood because of the principle of beneficence.
 - B. Obtain a court-appointed representative.
 - C. Schedule a hospital ethics consult.
 - D. Give blood because this is a life-threatening emergency.
 - E. Do not give blood products.
-

559.

A 76-year-old man with end-stage COPD (FEV_1 .30) presents unconscious. He is found to have a pCO_2 of 110. He has stated in several clinic visits his desire not to be intubated. His children who brought him in request everything be done, including intubation.

Which of the following is the most appropriate next step?

- A. Do not intubate patient; keep him comfortable.
 - B. Intubate patient.
 - C. Obtain a court-appointed representative.
 - D. Obtain an ethics committee consult.
-

560.

A 76-year-old man presents for evaluation of urinary frequency and decreased urinary stream. The symptoms have been present for the past 3 years but have worsened in the past 6 months. He is now getting up 4 times a night to urinate. On exam, his prostate is 3+ enlarged without nodularity. PSA is 3.0.

Which of the following do you recommend as the best initial therapy that will provide symptomatic relief most quickly?

- A. Prostate scan
 - B. Finasteride
 - C. TURP
 - D. Terazosin
 - E. Prostate biopsy
-

561.

A 74-year-old man reports increasing problems with sexual functioning. He reports normal sexual desire but inability to sustain an erection sufficient for intercourse. He has had these problems intermittently for the past 3 years; now the problem is present whenever he attempts sexual activity. Medications: sertraline, atorvastatin, ranitidine, and ginkgo biloba.

Which of the following is the most likely cause for his erectile dysfunction?

- A. Ranitidine
 - B. Sertraline
 - C. Vascular disease
 - D. Ginkgo biloba
 - E. Low testosterone
-

562.

A 67-year-old man presents for treatment of erectile dysfunction. He has had problems sustaining erections for the past year. He has a normal libido. Meds: simvastatin, omeprazole, isosorbide mononitrate, lisinopril, and aspirin.

Which of the following would you recommend for therapy?

- A. Sildenafil (Viagra®)
 - B. Intraurethral alprostadil (MUSE®)
 - C. Testosterone patch (Androderm®)
 - D. Referral for penile implant
-

563.

A 76-year-old man with CAD and Parkinson disease presents for primary care. His exam is remarkable for seborrheic dermatitis, some mild cogwheel rigidity, and a slightly enlarged prostate.

Which of the following tests would you recommend now?

- A. Cholesterol, PSA, CBC
 - B. Cholesterol, PSA
 - C. PSA
 - D. Cholesterol
 - E. No testing
-

564.

A 36-year-old man with HIV (CD4 count 470) and a history of hepatitis C presents for primary care. He reports he has not had any immunizations in the past 10 years. He has a past history of intravenous drug abuse, but none for 5 years.

LABS: Hep C quant 3 million, ep A IgG antibody negative, Hep B surface antibody+, AST 33, ALT 24, Hct 40, WBC 3.9.

Which of the following immunizations would you recommend?

- A. Annual influenza, Tdap
 - B. Pneumococcal, annual influenza, hep A series, Tdap
 - C. Pneumococcal, MMR
 - D. Annual influenza, pneumococcal, hep B booster, Tdap
 - E. Pneumococcal, hep B booster, annual influenza
-

565.

Which of the following is a true statement about lithium?

- A. It is the drug of choice for major depressive syndromes.
 - B. It can be a very effective treatment for bipolar affective disorder.
 - C. It has very few drug-drug interactions.
 - D. Lithium intoxication manifests as increased manic behavior.
 - E. Hyperthyroidism is a side effect of lithium administration.
-

566.

A 25-year-old man presents with the new diagnosis of schizophrenia. He works as a writer for a small town paper and is married. His family has a history of mood disorders and schizophrenia.

Which of the following is the best predictor of a good prognosis in the treatment of schizophrenia?

- A. Good premorbid functioning
 - B. Early onset
 - C. Family history of schizophrenia
 - D. Poor support system
 - E. No precipitating factors
-

567.

The best treatment of schizophrenia is which of the following?

- A. Psychosocial treatment alone
 - B. Antipsychotic medications alone
 - C. Antipsychotic medications and psychosocial treatment
 - D. Antipsychotic medications and the use of mind-control elements from radios
 - E. Electric shock therapy
-

568.

You are following a 25-year-old man with newly diagnosed schizophrenia. He was started on haloperidol 2 days ago. This morning, you receive a call from his wife saying that he has muscle spasms, tongue protrusion and twisting, and can't keep from deviating his head and eyes to the left.

The best treatment for his condition is which of the following?

- A. Acetaminophen.
 - B. Dopamine agonist.
 - C. Prolactin.
 - D. Diphenhydramine or benztropine immediately.
 - E. Take a warm shower and it will resolve.
-

569.

Which of the following is true with regard to suicide in the United States?

- A. The best predictor of future suicide is a past attempt.
 - B. Men commit suicide more often than women.
 - C. Women attempt suicide more often than men.
 - D. People older than 45 are at greater risk than younger people.
 - E. All of the statements are true.
-

570.

A 30-year-old man has a history of suicide attempts. Today when you see him in your office, he seems more depressed than usual. He recently lost his job and has been having marital problems. You ask him if he has suicidal thoughts, and he says that he has on occasion in the last few days. He says that he is "okay" right now, but yesterday he had made a plan to shoot himself.

Based on his history, which of the following should you do at this point?

- A. Voluntary hospitalization unless he refuses, then institute involuntary commitment.
- B. Voluntary hospitalization; if he refuses, then arrange appropriate follow-up tomorrow.
- C. Since he is not acutely suicidal in your office, arrange for visiting nurse to check on him.
- D. Since he is not acutely suicidal in your office, arrange for outpatient follow-up tomorrow.
- E. Keep him at your office for 3–4 hours and observe; if he is okay then send him home with close follow-up.

571.

Which of the following is/are helpful clue(s) on exams (as well as in patients) to diagnose depression?

- A. Anxiety.
 - B. Insomnia.
 - C. Anhedonia.
 - D. Poor concentration.
 - E. All items listed are helpful clues.
-

572.

A 50-year-old man presents to you with a complaint of feeling “bummed out” for the last 3 months. He went through a divorce 4 months ago. He leaves work early because of this “feeling.” He does not have a change in sleep habits, anxiety, or a change in appetite or psychomotor retardation. His physical examination is normal.

Which of the following is the most likely diagnosis?

- A. Manic-depressive disorder
 - B. Major depressive episode
 - C. Adjustment disorder with depressed mood
 - D. Schizophrenia
 - E. Anxiety disorder
-

573.

A 28-year-old woman is brought in by her husband. He says that she has become a worrywart. She is always worried about her job. She worries about her parents who live 50 miles away. She worries sometimes about her marriage and that her husband doesn’t love her. She worries that they don’t have enough money to make it through the month. She has never had feelings like she was going to die or major physical complaints from her worrying. She has not had episodes of hyperventilation. She does not relate any sleep disturbances or appetite changes. She says she has been worried “all her life.” You diagnose her with generalized anxiety disorder.

In addition to behavioral therapy, which of the following is the best treatment for this disorder?

- A. MAO inhibitor
 - B. SSRI
 - C. Haloperidol
 - D. Clonazepam
 - E. Lithium
-

574.

A 70-year-old woman presents with a 2-year history of recent progressive memory loss and the inability to “pay attention.” Now she has progressed to the point that she cannot speak clearly and her judgment appears to be impaired. On occasion, she will exhibit paranoid behavior—says “they are trying to get me.” You diagnose her with Alzheimer’s.

The plaques that cause Alzheimer's are made up of which of the following?

- A. Fibrillar actin particles
 - B. IgD
 - C. Cholesterol
 - D. Low-density lipoprotein
 - E. Beta-amyloid protein
-

575.

A 30-year-old woman presents with an attack of severe shortness of breath, palpitations, shaking, diffuse numbness, and an intense fear of dying. These attacks are not precipitated by any known factor or event. She is not on any medications and does not drink alcohol. Additionally, she is particularly scared to leave her house unless she can go with someone. Her physical examination is completely normal. A whole "battery" of tests, including thyroid functions, electrolytes, ECG, and Holter monitoring has been normal in the recent past.

Besides cognitive behavioral therapy, which of the following is the best initial therapy for this woman?

- A. Diazepam
 - B. Paroxetine
 - C. Lithium
 - D. Fluphenazine
 - E. Flurazepam
-

576.

A 50-year-old man with long-standing schizophrenia is admitted to your general medicine service for atypical pneumonia. He has been on chlorpromazine for over 15 years. In addition to the findings of pneumonia and schizophrenia, you note that he repetitively smacks his lips and thrusts his tongue. Also you note that he has a stooped posture.

Which of the following is the best way to reverse his neurologic symptoms?

- A. Reduce the dose of chlorpromazine.
 - B. Give oxazepam.
 - C. Give propranolol.
 - D. Give levodopa-carbidopa.
 - E. Give levodopa only.
-

577.

You are presenting a 45-year-old man with Wernicke aphasia on rounds to a group of 3rd year medical students.

Which of the following is not likely to be elicited on rounds with the students?

- A. Poor language comprehension
 - B. Fluent speech output
 - C. Paraphasic errors
 - D. Left inferior quadrantanopia
 - E. Poor repetition
-

578.

Which of the following is not a routine laboratory test used in the workup of dementia?

- A. TSH
 - B. Vitamin B₁₂
 - C. RPR
 - D. ESR
 - E. Serum lytes
-

579.

A 16-year-old teenager with a history of being “stubborn” all her life, according to her parents, has lately been noted to wash her hands up to 20 times a day. She also has to check and make sure the front door is locked multiple times during the day and night. In the last week, she has had to check her alarm clock to be sure it is set correctly—this has resulted in sleep disturbance, because she can’t get to sleep due to worrying that the alarm isn’t set correctly.

Which of the following is her most likely diagnosis?

- A. Antisocial personality disorder
 - B. Borderline personality disorder
 - C. Obsessive-compulsive disorder
 - D. Manic-depressive disorder
 - E. Narcissistic personality disorder
-

580.

The “antidote” of choice for treatment of poisoning with a tricyclic antidepressant is which of the following?

- A. Naloxone
 - B. Flumazenil
 - C. Sodium bicarbonate
 - D. Physostigmine
 - E. Phenytoin
-

581.

A 20-year-old woman presents to the emergency department tearful and agitated. She reports that she took a bottle of extra-strength acetaminophen 4 hours ago in a suicide attempt. Her physical exam is normal.

Lab: Hb 13, Hct 39, WBC 9,000. Acetaminophen level 280 mg/mL (elevated above toxic threshold for therapy).

Which of the following is the most appropriate management?

- A. Deferoxamine
 - B. Gastric lavage
 - C. Activated charcoal
 - D. N-acetylcysteine
 - E. N-acetylcysteine + activated charcoal
-

582.

A 73-year-old woman is admitted with a hip fracture. She has surgery (ORIF) and is doing well. On the 6th hospital day, she becomes confused, agitated, and develops a fever of 103° F. She complains of a headache. Physical exam is remarkable for some decreased range of motion of the neck, no skin lesions, and a clear chest. She has a nonfocal neuro exam, but is oriented only to person.

LABORATORY: WBC 17,000, Hct 33, Na 137, K 3.2, HCO₃ 26; U/A: 20–50 WBCs/ HPF, no RBCs
Chest x-ray is clear. Blood cultures are sent.

Which of the following would you most likely do next?

- A. No further testing; begin antibiotics.
 - B. Noncontrast CT scan followed by lumbar puncture.
 - C. Noncontrast/contrast CT scan followed by lumbar puncture.
 - D. Lumbar puncture.
-

583.

A 50-year-old contact lens wearer comes to the emergency department with a dramatic decrease in his visual acuity of his left eye. He reports that he was fine until this morning. Earlier in the week while on a business trip, he forgot to bring his contact lens solution. Unable to obtain lens solution, he instead used tap water to store his contact lenses overnight. He does not remember having any foreign bodies get into his eye. He has tried washing his eye out, but the pain and blurry vision have persisted.

PAST MEDICAL HISTORY: Hypertension for 20 years; on thiazide diuretic
History of cellulitis of right foot 10 years ago; resolved with oral medications

SOCIAL HISTORY: Drinks 2–3 beers daily; no smoking in 30 years

PHYSICAL EXAMINATION: Vital signs: Normal
Right eye: Normal
Left eye: Severely erythematous with severe chemosis
Slit lamp: Severe corneal deterioration
Annular infiltration is noted

Which of the following is the most likely pathogen?

- A. *Bartonella henselae*
 - B. *Acanthamoeba*
 - C. *Bacillus cereus*
 - D. *Staphylococcus epidermidis*
 - E. *Streptococcus oralis*
-

584.

A 70-year-old man with Type 2 diabetes presents with sudden right eye visual loss. He has no other symptoms (no headache, weakness, or history of head injury). He has no history of diabetic retinopathy. Eye exam shows a “cherry red spot.”

Which of the following is the most appropriate workup?

- A. Cerebral angiography
 - B. Head CT scan
 - C. Head MRI
 - D. Carotid duplex
 - E. Measure intraocular pressure
-

585.

A 28-year-old woman presents with the chief complaint of “can’t see at my periphery.” On visual field testing, she is unable to distinguish objects brought laterally toward the midline, encompassing nearly 1/2 of the visual field of each eye.

Which of the following lesions is most likely to account for her findings?

- A. Open-angle glaucoma
 - B. Pituitary tumor
 - C. Closed-angle glaucoma
 - D. Multiple sclerosis
 - E. Occipital tumor
-

586.

A 30-year-old woman is being evaluated for anisocoria. Her left pupil is small and round compared to the right pupil in room light. When you place her in a darkened room, this difference is increased. The left pupil responds briskly to light, constricts with pilocarpine administration, and dilates with atropine. Minimal dilatation is produced by 4% cocaine.

Which of the following describes the location of her lesion?

- A. Right occipital lobe
- B. Left iris
- C. Left third nerve
- D. Left optic nerve
- E. Left sympathetic chain

587.

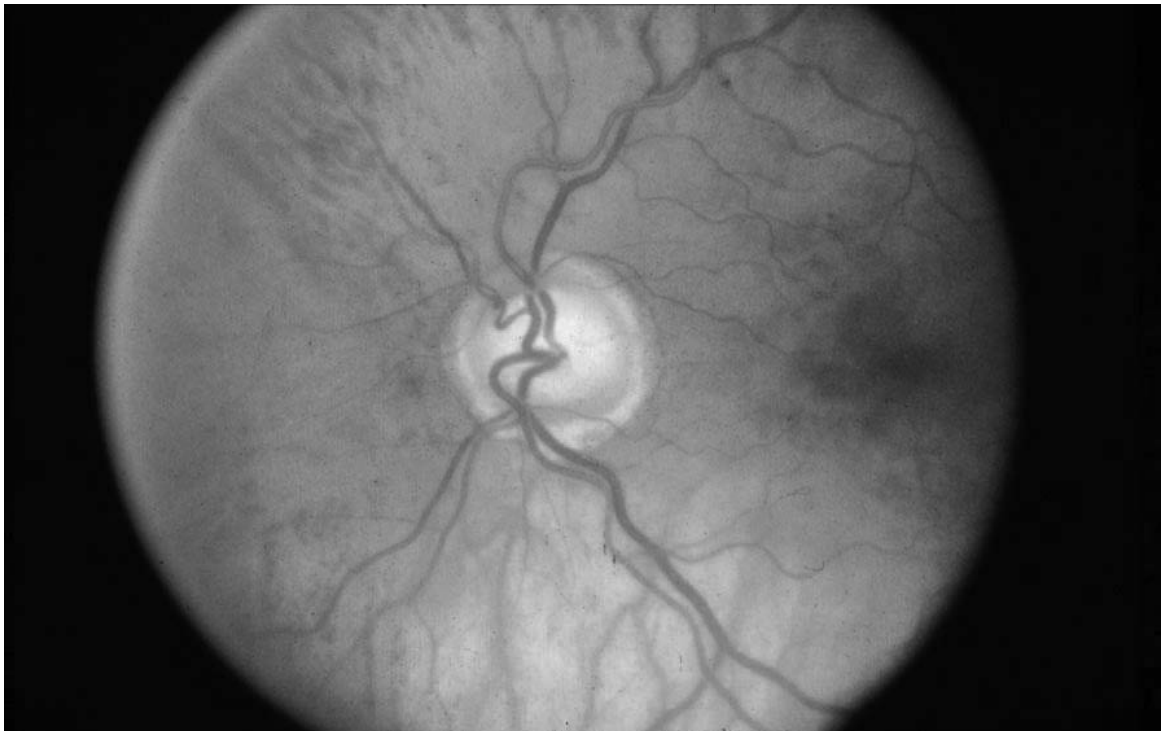
A 47-year-old man presents with worsening vision over the last few months since taking a new job. He has to read small type and spends hours leaning over a computer with poor lighting.

Of the following, what is the most likely etiology of his vision change?

- A. Retinal hemorrhage
- B. Acute-angle glaucoma
- C. Optic neuritis
- D. Presbyopia
- E. Gonorrheal ophthalmitis

588.

A 58-year-old woman comes in for follow-up of HTN. She notes that her vision has gradually become more blurred, R > L. She failed the screening eye exam to renew her driver's license last week. (See Appendix B color image Figure 12.)



Her eye exam (see figure) is most consistent with which of the following?

- A. Macular degeneration
 - B. Cataracts
 - C. Hypertensive retinopathy
 - D. Glaucoma
-

589.

A 36-year-old HIV patient with a CD4 count of 26 presents with the complaint of “floaters” in his vision field. He is on therapy for pulmonary tuberculosis. Fundoscopic exam shows scattered fluffy infiltrates peripherally.

The etiology of his visual symptoms is most likely which of the following?

- A. Retinal tuberculosis
 - B. Toxoplasmosis
 - C. Cytomegalovirus retinitis
 - D. HIV retinopathy
 - E. *Cryptococcus*
-

590.

A 27-year-old pregnant woman in her late 1st trimester presents with dyspnea and pleuritic chest pain. She reports that she has had progressive leg swelling for the last week. ABG shows pH 7.48/PCO₂ 22/PaO₂ 80 on room air. She is found to have a DVT with probable pulmonary embolus.

The best treatment plan for her includes which of the following?

- A. IV heparin, and begin warfarin as soon as PTT is therapeutic.
 - B. Subcutaneous low-molecular-weight heparin injections.
 - C. IV heparin, and begin warfarin on day 3.
 - D. Thrombolytics followed by heparin.
 - E. Begin warfarin at low dose.
-

591.

A 23-year-old woman presents for primary care. She reports that she has not had menses in 3 months. A urine pregnancy test is positive.

Of the following choices, what testing would you recommend next?

- A. Urine culture
 - B. Serology for HSV II, urine culture, and RPR
 - C. RPR
 - D. Urine culture, HIV ELISA, and RPR
 - E. Serology for HSV II
-

592.

A 26-year-old woman presents with a 4-month history of vaginal bleeding. During this 4-month time frame, she has had menstrual periods every 10–16 days lasting 3–5 days at a time. She has had no pain and otherwise has felt fine. She states that she is not currently sexually active. Physical examination is normal with a normal pelvic examination and normal uterine size. Pregnancy test is negative.

Which of the following would you recommend for her at this time?

- A. Transvaginal ultrasound.
 - B. Dilatation and curettage.
 - C. Begin a trial of an oral contraceptive agent.
 - D. Endometrial biopsy.
 - E. Pelvic CT scan.
-

593.

A 29-year-old woman presents for evaluation of postcoital bleeding. She has had a small amount of bleeding after intercourse 4 times over the past 2 weeks. She has had no pain and no other symptoms. She has had 2 normal Pap smears in the past 3 years.

Which of the following is the most likely finding upon speculum examination?

- A. Cervical cancer
 - B. Cervical HSV
 - C. Endocervical polyp
 - D. Nabothian cyst
 - E. Foreign body
-

594.

A 32-year-old woman has been having difficulty getting pregnant. She has normal external and internal genitalia and has a history of dysmenorrhea.

Which of the following is most likely the cause of infertility in a menstruating woman over the age of 30 in the absence of a PID history?

- A. Leiomyoma
 - B. Cervical carcinoma
 - C. Uterine carcinoma
 - D. Adenomyosis
 - E. Endometriosis
-

595.

A 16-year-old female presents for initial evaluation. She has not started menses yet. She denies sexual activity. She has normal sexual characteristics and is at Tanner Stage 4–5 for all of her sexual characteristics.

Of the following choices, what is/are the first tests you should order in your evaluation of her primary amenorrhea?

- A. Pregnancy test
 - B. Serum TSH
 - C. Serum FSH, LH
 - D. Testosterone level
 - E. Chromosomal analysis
-

596.

A couple presents because of infertility. They both have a normal history and physical examination.

Of the options listed below, what is one of the first tests to do for the initial evaluation?

- A. Hysterosalpingogram
 - B. Semen analysis
 - C. Laparoscopy of the woman
 - D. Laparoscopy of the man
 - E. Endometrial biopsy
-

597.

A 28-year-old woman with HIV presents for prenatal care. She was diagnosed 4 years ago with HIV. At that time, she had oral and vaginal candidiasis, a CD4 count of 200, and a viral load of 30,000. She was treated with lopinavir/ritonavir + tenofovir/emtricitabine. She now has a CD4 count of 370 and an undetectable viral load. She asks for your advice on what medications she can take during pregnancy.

Which of the following should you advise?

- A. Stop antiretrovirals, restart zidovudine at 34 weeks.
 - B. Stop current regimen and switch to zidovudine now.
 - C. Switch to ddI/d4T/amprenavir.
 - D. Continue with current regimen.
 - E. Stop all antiretrovirals.
-

598.

A 24-year-old woman with Type 1 diabetes wishes to become pregnant. She has been using 70/30 insulin twice a day with supplemental regular insulin at meals. Her last 3 glycated hemoglobins were 7.0, 7.2, and 7.3. She is currently on an oral contraceptive pill.

Which of the following should you advise for her?

- A. Stop the OCP, keep glycated Hb no more than 7.5.
 - B. Stop the OCP, keep glycated Hb no more than 7.
 - C. Continue on the OCP, intensify insulin regimen for target glycated Hb 6.
 - D. Continue on OCP, keep glycated Hb no more than 7.
-

599.

A 76-year-old woman is evaluated for urinary incontinence. She reports a 6-year history of incontinence occurring when she laughs, coughs, or sneezes. Recently, she has had incontinence while standing. U/A is normal, BUN 14, Cr 1.1, Glu 111.

Which of the following would you most likely recommend?

- A. Oxybutynin 2.5 mg PO bid
 - B. Kegel exercises
 - C. Doxazosin 2 mg PO bid
 - D. Imipramine 25 mg PO q hs
-

600.

Which of the following individuals is the best candidate for a DXA scan?

- A. 26-year-old healthy woman whose grandmother has a dowager hump (thoracic kyphosis)
 - B. 69-year-old healthy woman with essential hypertension taking HCTZ
 - C. 55-year-old healthy man who fractured his humerus in a biking accident
 - D. 60-year-old healthy man with a normal TSH taking levothyroxine
 - E. 50-year-old healthy, perimenopausal woman
-

APPENDIX A

NORMAL LABORATORY VALUES

NORMAL LABORATORY VALUES

Blood, Plasma, Serum	Reference Range	SI Reference Intervals
Alanine aminotransferase (ALT, SGPT)	0–0.58 μ kat/L	0–35 U/L
Amylase, serum	60–160 Somogyi units/dL	60–180 U/L
Aspartate aminotransferase (AST, SGOT)	0–0.58 μ kat/L	0–35 U/L
Bilirubin, serum (adult) Total // Direct	0.1–1.0 mg/dL // 0.0–0.3 mg/dL	2–17 μ mol/L // 0–5 μ mol/L
Calcium, serum	8.4–11 mg/dL	2.1–2.8 mmol/L
Cholesterol, serum-desirable	< 200 mg/dL	< 5.2 mmol/L
Cholesterol, serum-borderline	200–239 mg/dL	5.2–6.18 mmol/L
Cholesterol, serum-undesirable	> 240 mg/dL	> 6.2 mmol/L
Creatine kinase, serum (total)	Male: 55–170 U/L	55–170 U/L
	Female: 30–135 U/L	30–106 U/L
Creatinine, serum	0.6–1.2 mg/dL	53–106 μ mol/L
Electrolytes, serum		
Sodium	135–147 mEq/L	135–147 mmol/L
Chloride	95–105 mEq/L	95–105 mmol/L
Potassium	3.5–5.0 mEq/L	3.5–5.0 mmol/L
Bicarbonate	22–28 mEq/L	22–28 mmol/L
Ferritin, serum	Male: 15–200 ng/mL	15–200 μ g/L
	Female: 12–150 ng/mL	12–150 μ g/L
Gases, arterial (room air)		
pO ₂	80–100 mmHg	11.0–13.0 kPa
pCO ₂	34–45 mmHg	4.4–5.9 kPa
pH	7.35–7.45	7.35–7.45
Glucose, serum	Fasting: 70–110 mg/dL	3.8–6.1 mmol/L
	2 hr postprandial < 120 mg/dL	< 6.6 mmol/L
Growth Hormone, serum	Fasting: < 5 ng/ml	< 5 μ g/L
	Provocative stimuli: > 7 μ g/mL	> 7 μ g/L
Immunoglobulins, serum		
IgA	76–390 mg/dL	0.76–3.90 g/L
IgE	0–380 IU/mL	0–380 μ g/L
IgG	650–1,500 mg/dL	6.5–15 g/L
IgM	40–345 mg/dL	0–3.45 g/L

Appendix A — Normal Laboratory Values

Iron	50–170 µg/dL	9–30 µmol/L
Lactate dehydrogenase	60–120 µkat/L	35–88 U/L
Osmolality, serum	275–295 mOsmol/kg	275–295 mOsmol/kg
Parathyroid hormone, serum, N-terminal	230–630 pg/mL	230–630 ng/L
Phosphatase (alkaline), serum	30–120 U/L	0.5–2 nkat/L
Phosphorus (inorganic), serum	3.0–4.5 mg/dL	1.0–1.4 mmol/L
Prolactin, serum	< 20 ng/mL	< 20 µg/L
Proteins, serum		
— Total (recumbent)	6.0–7.8 g/dL	60–78 g/L
— Albumin	3.5–5.5 g/dL	35–55 g/L
— Globulins	2.3–3.5 g/dL	23–35 g/L
Thyroid stimulating hormone, serum/plasma	2–10 µU/mL	2–10 mU/L
Thyroidal (radioactive) iodine uptake	6–30% of administered dose/24 hr	0.06–0.30/24 hr
Thyroxine (T₄), serum	5–12 µg/dL	64–155 mmol/L
Triglycerides, serum	35–160 mg/dL	0.4–1.81 mmol/L
Urea nitrogen, serum (BUN)	7–18 mg/dL	1.2–3 mmol/L
Uric acid, serum	3.0–8.2 mg/dL	0.18–0.48 mmol/L

Cerebrospinal Fluid	Reference Range	SI Reference Intervals
Cell count	0–5 cells/mm ³	0–5 X 10 ⁶ /L
Glucose	40–70 mg/dL	2.2–3.9 mmol/L
Pressure	70–180 mmH ₂ O	70–180 mmH ₂ O
Proteins, total	< 40 mg/dL	< 0.40 g/L

Appendix A — Normal Laboratory Values

Hematologic	Reference Range	SI Reference Intervals
Bleeding time (template)	2–7 minutes	2–7 minutes
Erythrocyte count	Male: $4.3\text{--}5.9 \times 10^6/\text{mm}^3$ Female: $3.5\text{--}5.5 \times 10^6/\text{mm}^3$	$4.3\text{--}5.9 \times 10^{12}/\text{L}$ $3.5\text{--}5.5 \times 10^{12}/\text{L}$
Hematocrit	Male: 41–53% Female: 36–46%	0.41–0.53 0.36–0.46
Hemoglobin, blood	Male: 13.5–17.5 g/dL Female: 12.0–16.0 g/dL	2.09–2.71 mmol/L 1.86–2.48 mmol/L
Hemoglobin, plasma	1–4 mg/dL	0.16–0.62 $\mu\text{mol}/\text{L}$
Leukocyte count and differential		
Leukocyte count	4,500–11,000/ mm^3	$4.5\text{--}11 \times 10^6/\text{L}$
Segmented neutrophils	54–62%	0.54–0.62
Band forms	3–5%	0.03–0.05
Eosinophils	1–3%	0.01–0.03
Basophils	0–0.75%	0–0.0075
Lymphocytes	25–33%	0.25–0.33
Monocytes	3–7%	0.03–0.07
Mean corpuscular hemoglobin	25.4–34.6 pg/cell	0.39–0.54 fmol/L
Mean corpuscular hemoglobin concentration	31–36% g Hb/cell	4.81–5.58 mmol g Hb/L
Mean corpuscular volume	86–98 μm^3	86–98 fl
Partial thromboplastin time	Comparable to control	Comparable to control
Platelet count	150,000–400,000/ mm^3	$150\text{--}400 \times 10^9/\text{L}$
Prothrombin time	< 2 sec deviation from control	< 2 sec deviation from control

APPENDIX B

REFERENCE COLOR PHOTOS

Appendix B — Reference Color Photos

Figure 1, Gastroenterology, Question 3 & 4



Figure 2, Gastroenterology, Question 34

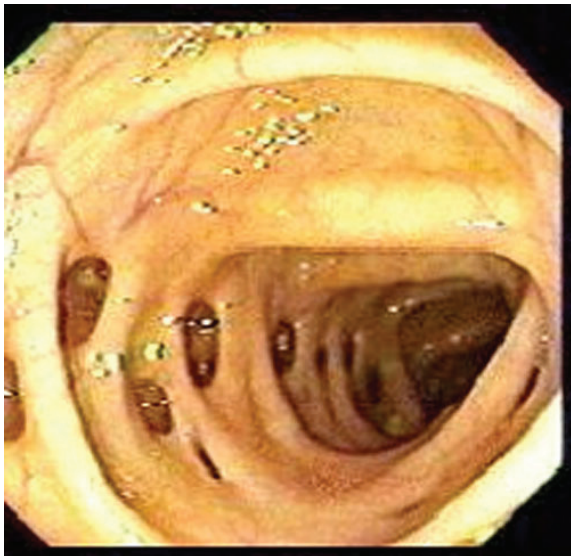


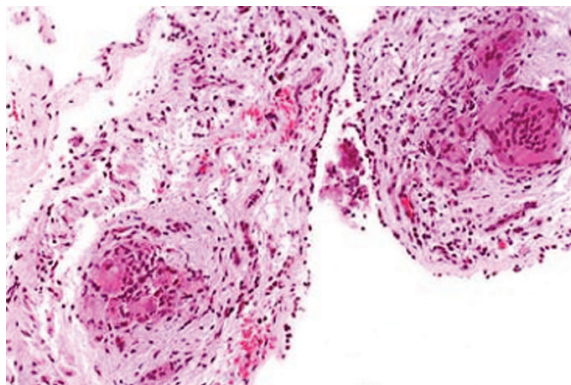
Figure 3, Gastroenterology, Question 39



Figure 4, Pulmonary Medicine, Question 82



Figure 5, Pulmonary Medicine, Question 82



Appendix B — Reference Color Photos

Figure 6, Pulmonary Medicine, Question 84

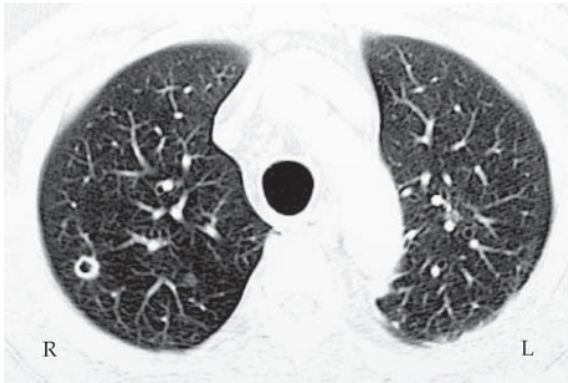


Figure 8, Pulmonary Medicine, Question 98

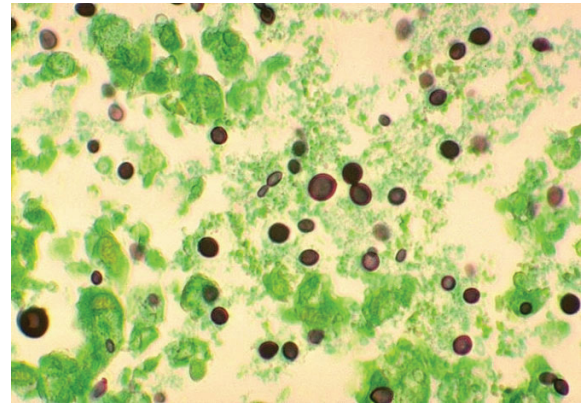


Figure 7, Pulmonary Medicine, Question 84

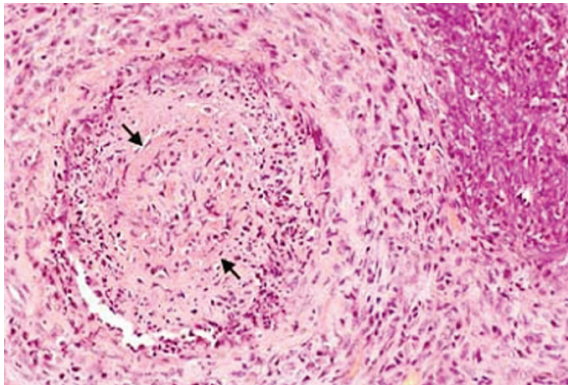


Figure 9, Pulmonary Medicine, Question 104



Appendix B — Reference Color Photos

Figure 10, Infectious Disease, Question 228

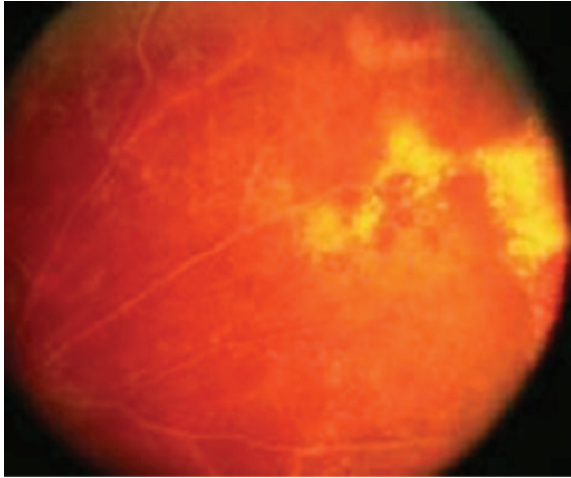
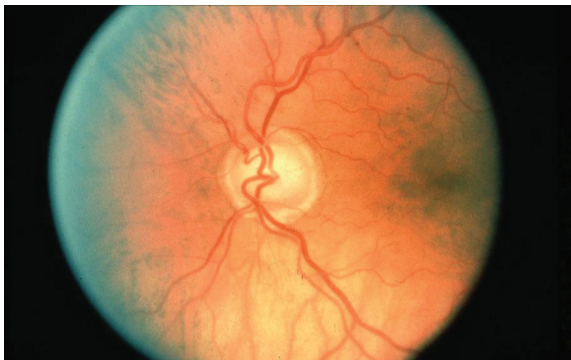


Figure 11, Rheumatology,
Question 485



Figure 12, General Internal Medicine,
Question 588



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